

LIBRARY OF
CONGRESS,
Two Copies Received
JUL 26 1902
Copyright, Entry
JUL 27 1902
CLASS BOX NO.
32345
COPY R.

The Automobile and Weekly MOTOR REVIEW 10 Cents

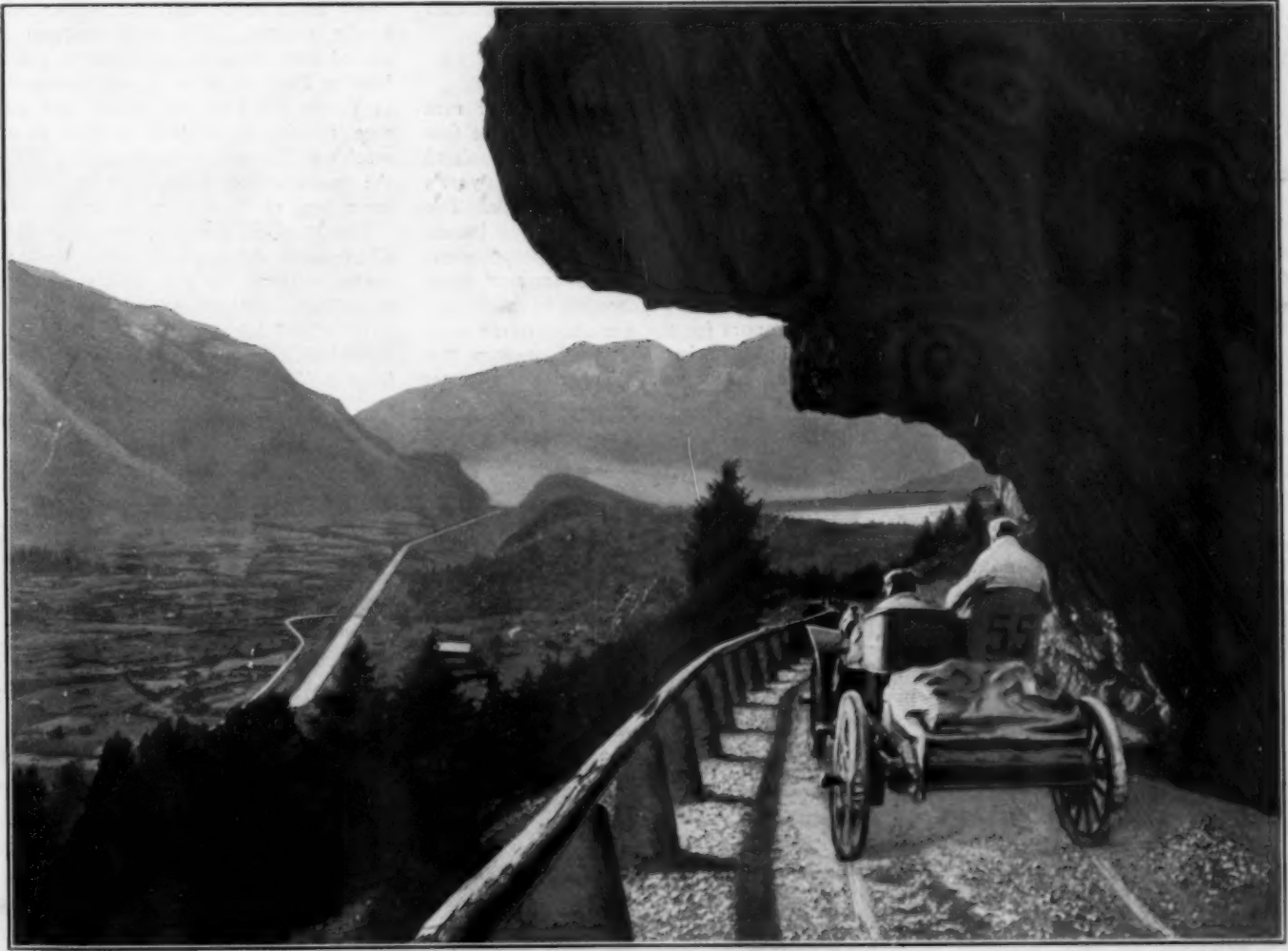
NEW YORK SATURDAY, JULY 26, 1902 CHICAGO

IT can hardly be said as yet that motoring has a history; the record of its initial stage consists of a mere list of independent and isolated experiments, separated by long intervals, while its actual development is so much the work of men who are even

THE PARIS-VIENNA RACE

nity at present enjoyed by the locomotive and the steamboat, with a history as long and as interesting as that of either to-day, the name of the French capital will stand

not as sporting events of mere passing interest, but as milestones in the way of mechanical progress. It is too soon as yet to estimate the true technical value of these events; there is no background, no perspective, and while we may with advantage



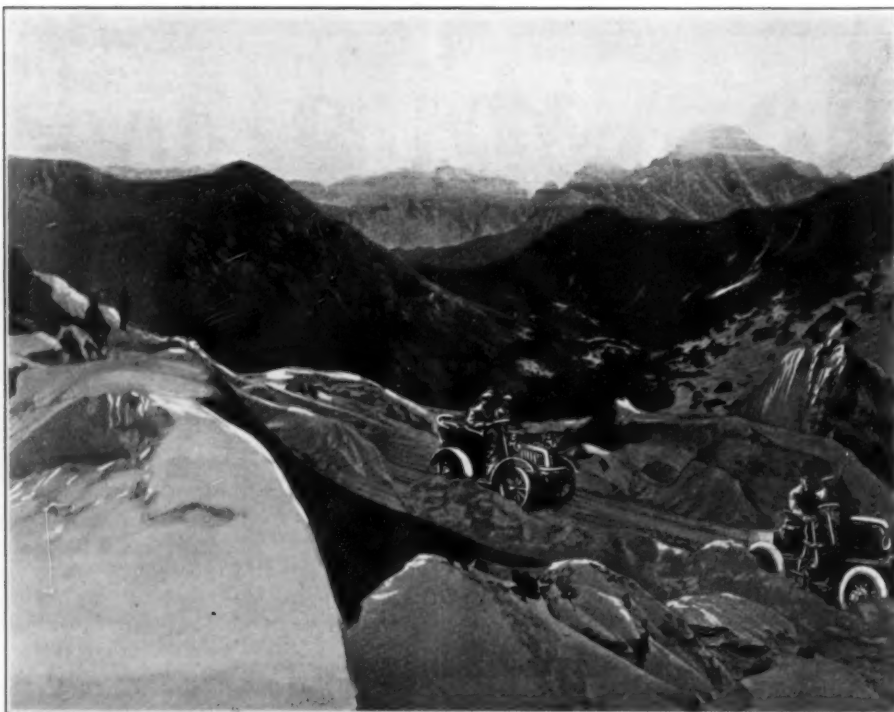
OVER THE ALPS IN A MOTOR CAR— DE DIETRICH CAR DRIVEN BY MERVILLE

From the "Sport Universel Illustré"

now only in the prime of life as to make it a matter of the present rather than the past. When the time comes that the now lusty infant has attained the age and dig-

out prominently in the early pages. The great races that center about it, Paris-Marseilles, Paris-Lyons, Paris-Bordeaux, Paris-Berlin and Paris-Vienna, will appear

attempt to deduce useful lessons from them, it is impossible to judge them fairly. Conceding all that is urged against them, it is nevertheless evident that much good



THE RACE OVER THE ARLBERG
From a photo by Schneider

has already resulted, and that more may be confidently looked for in the near future, especially if international rivalry shall be more fully developed.

The Paris-Berlin race of last year, a speed contest over good roads, is now very generally accepted as a material factor in the improvement evident this year in the ordinary road car. In preparing for it during the previous winter the many makers represented had before them the problem of producing cars of exceptional speed and endurance—judged by existing standards—without regard to weight. The course was longer than any previously attempted, the speed was certain to be much higher, and a veritable road locomotive was necessary, instead of a mere horseless carriage.

This year the problem assumed a different aspect. The first consideration was the new limit of weight imposed by the Automobile Club of France, 1,000 kilograms or 2,204 lbs. for the heaviest and most powerful vehicles. The total course measured over 900 miles, of which 695 were to be covered at racing speed. The four stages have been well summed up by a French writer: The first was a race over good French roads; the second was a tour over bad roads but at slow speed; the third was a course of automobile acrobatics, with a tire test; the fourth was a continuation of the acrobatics, with a test of axles and springs. While some have hastened to proclaim the failure of the most famous makes of the year, it must be remembered that the long route over the mountains was a most severe test, from which seventy-one out of 138 starters came out successful.

From another point of view the race may be summed up as follows: The first day was a grand victory for the Panhard cars, the Mors—winner of last year's race—meeting with very bad luck. The second and third days brought new laurels to the German Mercedes; the two cars entered—each driven by its amateur owner—made a splendid showing of endurance. The honors for the complete course went to a light car in the second category, the Renault, to the general surprise of experts.

The *personnel* of the racing division has also changed greatly. The list of winners is made up of new names, Marcel Renault, Henry Farman, Maurice Farman, Zborowski, Edmond and de Forest, while nearly all the best-known racing men failed to get through, Fournier, Girardot, de Knyff, Giraud, Heath and the two Americans, Vanderbilt and Foxhall Keene, all coming to grief.

The Course and Conditions

The Paris-Vienna race was planned by the Automobile Club of France, assisted by the Automobile Club of Austria, and the arrangements have been under way for nearly a year. Many difficulties had to be encountered in laying out a suitable course; securing the consent of the two governments, etc.; in fact, until the successful termination of the Alcohol Circuit last month it was uncertain whether the permission of the French Government would be obtained. In addition, for a distance of some 200 miles between the French and Austrian frontiers, it was necessary to pass over foreign territory, either Swiss or German, the former being finally selected. The full program included three separate events: first, a tour, leaving Paris on June 19 and terminating in Vienna on June 28; second, the great race, starting from Paris on June 26 and reaching Vienna on June 29; at Vienna the racers and tourists were to combine for a tour of Bosnia and Herzegovina.

The start of the race was located at Champigny, about twelve miles from the center of Paris, the first day's stage being to Belfort, on the French frontier, a distance of 408 kilometers. The run of the second day was through Swiss territory, from Belfort to Bregenz, 312 kilometers;



MME. DE SCHOENBORN PRESENTING THE FURSTENBERG PRIZE TO MARCEL RENAULT
From *L'Illustration*

this entire distance was "neutralized," the authorities being opposed to racing. The course of the third day was from Bregenz

kilometers, covered by Girardot in a 40-h.p. Panhard in 8 hours, 47 minutes 39 seconds. The course for this year was

by the way was open until the start on the following morning, an escort mounted on a bicycle led the way to the parc; on entering, the driver and his attendant mechanic at once stopped the motor, disconnected the battery, extinguished the incandescent tube, or in the case of a steam car extinguished the burners and emptied the boiler. It was also permissible to run a little gasoline into the cylinders while they were still warm, but beyond this all repairs, adjustments, oiling, leaving the enclosure at once. On the etc., were rigorously forbidden, the party next morning at the exact moment indicated on the card for their start, the driver and assistant entered the enclosure and the car was timed as starting. It was supposed to be set in motion instantly, but if after four or five minutes the motor failed to work, the attendants pushed the car outside the enclosure and the driver was at liberty to make repairs and adjustments; the time, however, being counted against him. Under no circumstances was any work whatever permitted on the car within the official enclosure.

The entire course was marked with



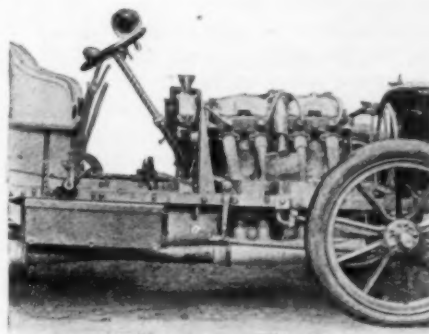
S. F. EDGE, WINNER OF THE GORDON BENNETT CUP—in his 40 h.-p. Napier Car
From *The Motor Journal*

to Salzburg, 337½ kilometers, first over the Arlberg Mountain and then over a succession of rough and mountainous

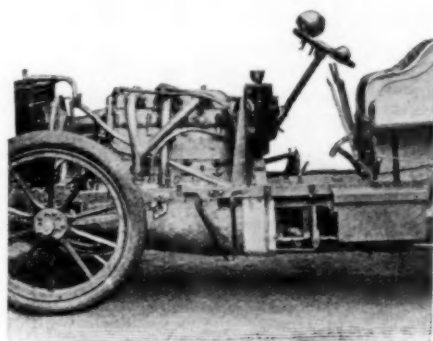
from Paris to Belfort and then to Innsbruck, on the second stage, a total distance of 618 kilometers. The defenders nominated by the Automobile Club of France were Girardot, Fournier and Rene de Knyff; the foreigner contestants being the three English motorists, Montague Grahame White, Herbert Austin and Arthur Callan; all, however, failing to start and S. F. Edge taking a vacant place. The three French cars in this section of the race were painted blue and the English red. They were allotted the first six places at the start.

The General Rules

The first start was made in the order of the entries, except for the Bennett cup men, an interval of two minutes being allowed between each car. The succeeding starts were made in the order of the arrivals on the previous evening, lists being made out as soon as possible by the control agents and posted on the door of the



Napier Car, Exhaust Side
From *The Autocar*



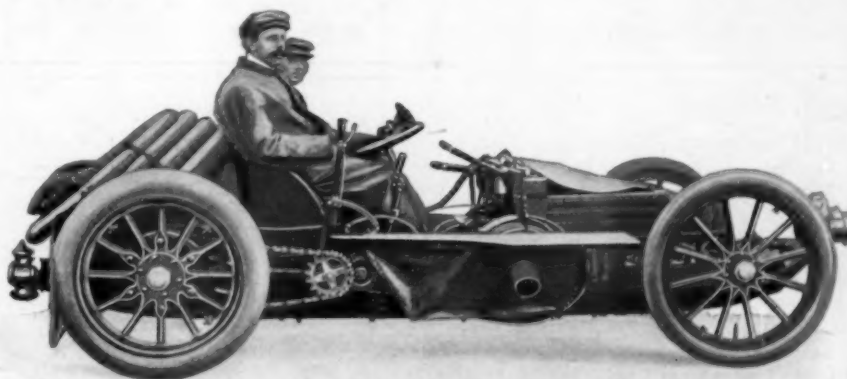
Napier Car, Inlet Side
From *The Autocar*

roads. The final run was still over bad but less dangerous roads, 335½ kilometers to Vienna. The finishing conditions were peculiar. The last regular control was at Floridsdorf, a suburb about 8 kilometers from the center of the city, where each competitor was supposed to stop, his time being taken; then he was allowed 45 minutes in which to cover the five miles through the city to the trotting course on the Prater, making a final round of the course at speed for the benefit of the spectators.

The Gordon Bennett Cup

Auxiliary to the main race was the international contest for the Gordon Bennett cup. This trophy, first offered in 1900, must be run over a course located in the country of the holder, the distance being about 600 kilometers. It was first raced for over the Paris-Lyons course, 566 kilometers, being won by Charron in a 27-h.p. Panhard, the time being 9 hours, 9 minutes 49 seconds. The race of last year was from Paris to Bordeaux, 560

flags, yellow signaling an absolute stop, blue calling for slower speed for a dangerous place, or black for the same pur-



WOLSELEY CAR—45 h.-p. on the road to Dover
From *The Motor Journal*

"parc" or enclosure in which all the cars were under watch for the night. On arrival at the last control of the day, which

pose where no allowance was made for the required reduction of speed. Particolored flags, the lower half white and the



W. K. VANDERBILT, Jr., AT THE START

upper yellow, blue or black, signified that speed might be resumed. Controls were marked by groups of three flags, the two national ensigns and the yellow flag indicating a stop. On arriving at an intermediate city each car stopped at the entering control and the card was signed with the time of arrival and the time at which it was permitted to pass the outgoing control; a bicycle guide then led the way through the town, the car following at a distance of at least 80 to 100 ft. to the next control, where the card was delivered and the car allowed to start at its proper time. Drivers were strictly prohibited from passing a guide. In case two cars arrived at once at a control, one was compelled to keep at least 150 ft. in the rear of the other through the town and to wait until the leader had at least that start on leaving. The various officials were marked by arm badges of different colors. In France and Switzerland the rule of the road is as in this country, to the right in passing and to the left in overtaking; but in Austria it is the reverse, the competitors being compelled to observe the local law. The neutralizations on the first day amounted to 2 hours 43 minutes.

The long road between the French and

Austrian capitals was known to be none of the best, and a number of the racing men covered it in part in advance by way of familiarizing themselves with it. On June 14 Rutishauser, the well-known Serpollet driver, left Paris in one of the firm's new 6-h.p. cars, followed three days later by Franz Reichel, of Figaro, in a sister vehicle, both going through to Vienna. They reported the roads as very bad, especially in Switzerland and in the western part of Austria, there being then six feet of snow on the Arlsberg, with men laboring to clear the road for the cars. Apart from the mountainous nature of the roads, the surface was very bad, cut by deep ditches and gullies. Fournier took his new Mors over the French and Swiss portions of the course, W. K. Vanderbilt, Jr., was over the French portion, while de Knyff, Charron and others were also out.

The Eve of the Race

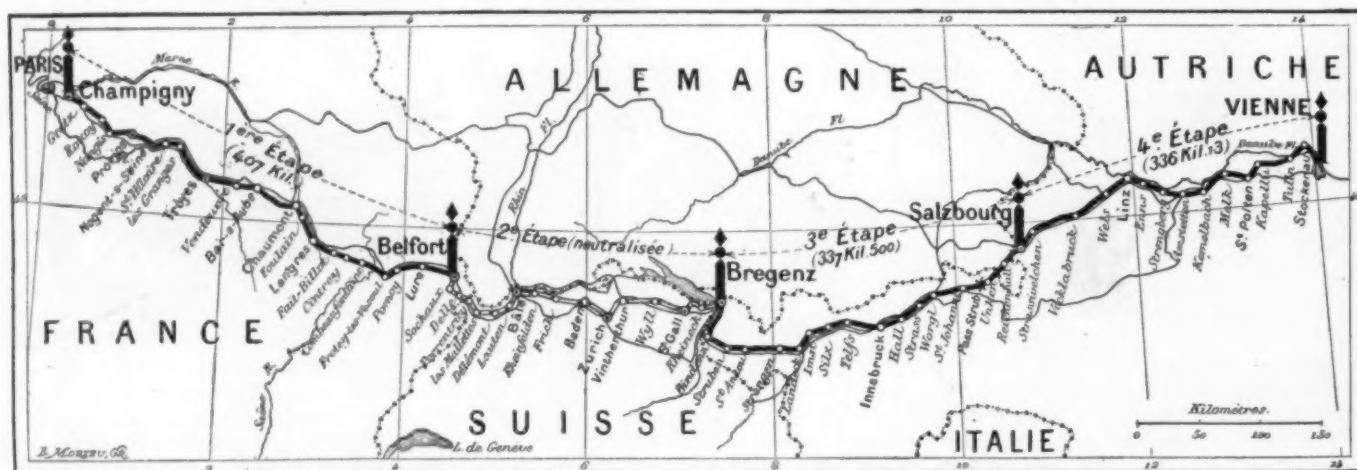
The first preliminary was the entry, made last winter by many, Fournier being first with Gabriel, de Caters and Foxhall Keene after him. This ceremony was only valid when accompanied by a fee of 200 francs (\$40). The real work began with the weighing of the cars, on Monday, June 23, at the Automobile Club de France,

Place de la Concorde. The results of a year's hard work by such great firms as the Mors, Panhard, Daimler, Napier, Darracq, Renault, Serpollet and the new Charron, Girardot and Voight, were all on exhibition before an interested audience. With the club officials were the customs officers, playing a very important part, as at the time of weighing each contestant had to pay the customs fees for Switzerland and Austria in bulk, thus avoiding delay on the road. These fees were as follows, according to the weights of the cars: 100 kilograms, 500 francs (\$100 for a 62-lb. motorcycle); 200 kilos., 600 francs; 300 kilos., 700 francs; 600 kilos, 1,000 francs, and so on up to 1,400 francs for the limit of weight of 1,000 kilograms. Among other formalities the exhaust was tested for its effect upon the road, in raising dust or injuring the surface. A handful of sawdust was thrown under the exhaust and the motor was run at varying speeds. If the sawdust was blown violently away the muffler was altered. The extremes were reached in the Mercedes and the Panhards, the former running quietly and regularly at low speed while the latter told audibly of the power within them. The Wolseley car driven by Grahame White had no exhaust and made a terrible noise.

The total entries numbered 218, and of these 146 appeared before the officials at the final weighing.

The Start at Champigny

Paris was favored with real summer weather, on the day preceding the start, and the warm air and clear brilliant moonlight brought out thousands of spectators who spent the entire night in the neighborhood of Champigny. All through the evening streams of carriages, bicycles, motor cars and foot passengers converged from all directions to the top of the hill where a banner stretched across the road announced the starting point. The big and brilliant lamps of the cars flashed in every direction mingled with hundreds of smaller lights on the bicycles, while from the trees were



THE COURSE

From *La Locomotion*

hung alcohol torches. Booths were erected for the sale of refreshments and for the checking of cycles, while big trucks were at hand with supplies of alcohol and petrol. A company of artillery, free to witness the start, came up singing merrily, while the great crowd, estimated at 30,000, was animated by a spirit of fun and good nature. One by one the great new racing cars rushed up the narrow road between the crowd and took their places, each beside a tree on which a placard with its racing number had been posted. The midnight trains from Paris brought out fresh crowds of spectators, who charged over the three miles between the little station at Nogent-Le-Perreux and the start on foot, but few conveyances being obtainable. One of these trains was a special, through to Vienna, carrying many makers, motorists and newspaper men, the charge for the single trip being 250 francs (\$50); this party stopped off and climbed the Champigny hill with the rest.

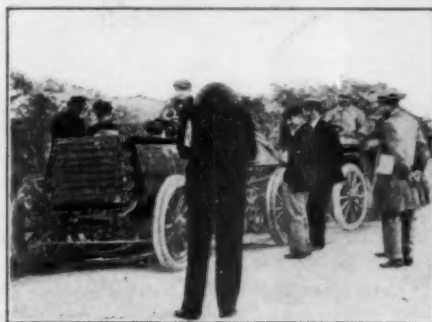
At the Starting Line

According to order of entry Fournier was entitled to the first place in line, but a slight change was made owing to the Bennett cup race. Girardot, the holder of the cup, was given first place, his number of entry being 12; Fournier came next, and then came Edge, No. 45, the English champion, with de Knyff in fourth instead of fifth place. At the last moment the drivers of the three Wolseley cars, powerful racing machines but hurried to completion without proper trial, decided to abandon the course, and Mr. Edge took their place as the national representative. The sparking coils of the English machines had proved defective and it was impossible to replace them with others of British make, as the conditions of the cup required. Mr. Edge also suffered from the same trouble, though it did not rob him of the ultimate victory. Before starting each contestant was given three small flags, the French, the Austrian and one with the number of his car. Every car carried the number in front and on some were the letters A. L., signifying that alcohol was used instead of gasoline.

The sun was just high enough to throw long shadows across the full width of the road, as shown in some of the photos, when the official starter Mr. Huet summoned Girardot to advance to the line. The veteran racer moved his new C. G. V. car forward and rested, with hand on steering wheel and eye on watch as the five minutes ran slowly by, when, at 3.30 exactly, the word "Attention" was given and the red flag dropped, the great machine leaped instantly into life and fairly flew between the row of eager faces that lined the road for miles. Next came Fournier with his new Mors, waiting just two minutes and then starting in hot pursuit. Following him came to the line Mr. Edge, with his amateur mechanic Cecil Edge, on the powerful and formidable Napier with

its Dunlop tires; two minutes more and he is off, the big and amiable Rene de Knyff in his 70-h.p. Panhard taking the vacant place at the line and starting after another two minutes. By this time the dust enveloped everything along the road, the songs of the birds were drowned in the chuff-chuff of the motors, and the balmy odors of the summer fields were smothered under the fumes of gasoline and alcohol.

A brief interval of nine minutes and the start was resumed, now in numerical order: 2, Gabriel; 3, de Caters; 4, Foxhall Keene; 6, Maurice Farman; 7, Henry Farman, and so on through the long list. The passengers by the Vienna special left soon



A Snap Shot at the Start
From The Automotor Journal

after the first cars started, and the great crowd by degrees thinned down through the long interval before 218, the last car, crossed the line at 7.45. The following complete list of starters is worthy of a place as a permanent record:

LIST OF STARTERS.

G. V.—Gros voiture (heavy car).
V. L.—Voiture legere (light car).
V.—Voiturette.
A.—Autocycle.
Q.—Quadracycle.
T.—Tricycle.
M.—Motorcycle.
AL.—Alcohol fuel.
1. Fournier Mors—G. V.
2. Gabriel Mors—G. V.
3. de Caters Mors—G. V.
4. Foxhall Keene Mors—G. V.
5. De Knyff Panhard—G. V.—AL.
6. M. Farman Panhard—G. V.
7. H. Farman Panhard—G. V.
8. Jarrott Panhard—G. V.
9. Pinson Panhard—G. V.
10. Lays Panhard—G. V.
12. Girardot C. G. V.—G. V.
13. Giraud C. G. V.—G. V.
16. Fraignac Mors—V. L.
17. Teate Panhard—G. V.
18. Louis Renault Renault—V. L.
19. Cuchelet Peugeot—G. V.
21. Caillois Peugeot—V. L.
22. Rolle Mors—G. V.
23. Dechamps Dechamps—V. L.
26. Zborowski Mercedes—G. V.
27. Baron de Forest Mercedes—G. V.
33. Fouret Cottreau—V. L.
35. Baras Darracq—V. L.—AL.
36. Marcellin Darracq—V. L.—AL.
38. Edmond Darracq—V. L.
39. Hemery Darracq—V. L.
40. Collin Darracq—V. L.—AL.
41. Wherle Darracq—V. L.
44. Heath Panhard—G. V.
45. Edge Napier—V. L.
46. Salleron Georges Richard—V. L.
50. Tart Clement—V. L.
53. Williams Clement—A.
54. Masson Clement—A.
55. Merville de Dietrich—G. V.
56. Gras de Dietrich—G. V.
58. Lorraine-Barrow de Dietrich—G. V.
61. Conrad Gobron-Nagant—V. L.
63. Dernier Gobron-Nagant—V. L.
65. Van der Heyden Panhard—G. V.—AL.
66. Gaste Ste Automotrice—V. L.
67. Marnier Ste Automotrice—V. L.
68. Stead G. Richard—V. L.

69. Leger G. Richard—V. L.
72. G. Richard G. Richard—V.
73. Rivierre G. Richard—V.
76. Rigolly Gobron-Brillie—V. L.—AL.
77. Axt Panhard—G. V.
80. Rutishauser Serpollet—G. V.—AL.
81. Chanliaud Serpollet—G. V.—AL.
82. Le Bion Serpollet—G. V.—AL.
83. Cottard Serpollet—G. V.
84. Dompnet, Jr. Clement—V. L.
85. Welgel Clement—V. L.
86. Comiot Clement—V. L.
90. Augieres Mors—G. V.
91. Godard-Desmarais Mors—V. L.
95. Berteaux Panhard—V. L.
96. Grus Renault—V.
97. Oury Renault—V.
98. Cormier Renault—V.—AL.
100. Lamy Renault—V.
103. de la Touloubre Decauville—V. L.—AL.
104. Mestayer Decauville—V. L.
106. Thery Decauville—V. L.
106. Ullmann Decauville—V. L.
107. W. K. Vanderbilt, Jr. Mors—G. V.
122. Demont de Dion-Bouton—T.—AL.
123. Bardeau de Dion-Bouton—T.—AL.
124. Lazon de Dion-Bouton—T.—AL.
128. Canesse Lamaudiere—M.
131. A. Fournier Gobron-Brillie—V. L.—AL.
134. Valentin Ader—V. L.
135. Simon Ader—V. L.
140. Chauchard Panhard—G. V.
141. Labitte Werner—M.
142. Bucquet Werner—M.
143. Page Decauville—V. L.
145. Berrue Gobron-Brillie—V. L.—AL.
147. Marcel Renault Renault—V. L.
148. Louvet Renault—V. L.
153. Savariaux M.
155. Hanrlau Automobile Nationale—V.
156. Stephen Ribes Panhard—V. L.
157. Marot Decauville—V. L.
158. Cornilleau Decauville—V. L.—AL.
161. Passy Passy—V.
162. J. Gondoin Panhard—V. L.
163. Perrin Delahaye—V. L.—AL.
164. Varlet Delahaye—V. L.
165. Pirmex Delahaye—V. L.
166. Max Darracq—V. L.
167. Guillaume Darracq—V.
168. Marbais Darracq—V.
170. Herbert Austin Wolseley—V.
172. Villain Frunel—V.
173. Walcker Chenard-Walcker—G. V.
175. Fontaine Ader—M.
176. Gedda Rivierre—M.
177. Neron Bruneau—M.
180. Reguin M.
181. Renault Peugeot—V. L.
182. Doriot Peugeot—V. L.
184. Rouquette Peugeot—G. V.
185. Bardin de Dion-Bouton—Q.—AL.
186. Corre Corre—V.
187. Buchillet Corre—V.
188. Durand Corre—V.
189. Rivierre, Paul Dechamps—V. L.
190. Ravenez Decauville—V. L.
191. Holley de Dion-Bouton—T.
192. Gavaria G. V.
193. Lefebure Clement—V. L.
194. Volatum Clement—V. L.
195. Barbaroux Clement—V. L.
196. Dompnet, Sr. Clement—V. L.
197. Sabis-Bey Panhard—G. V.
198. Boyer Boyer—G. V.
199. Legrand Crouan—V. L.
200. Cozic Dechamps—V. L.
201. Tenearts Dechamps—V. L.
202. P. de Crawhez Panhard—G. V.
204. Dery Clement—A.
205. Olliver Serpollet—G. V.—AL.
206. Dupont Liberia—V. L.
207. Meyan de Dietrich—G. V.
208. H. de Rothschild Mercedes—G. V.
211. Luke Fahrzenfabrik—V.
212. Kirchelm Fahrzenfabrik—V. L.
213. Guders Panhard—G. V.
214. Dietrich Laurin Klement—M.
215. Clement Panhard—G. V.
216. Pierre Renaud Mors—V. L.
217. J. Cranhez Panhard—G. V.
218. Bellamy Mercedes—G. V.

Two dozen of the starters were tardy, losing from two minutes to two hours actual time. The total number of starters was 137, of which the heavy cars, weighing from 650 to 1,000 kilos., numbered 43; the light cars, weighing from 400 to 650 kilos., numbered 57; the voiturettes, under 400 kilos., 14; the tricycles—and one quad—under 250 kilos., 5; and the rest motorcycles. The leading makers were represented as follows: Panhard, 17; Darracq, 9; Mors, 8; Renault, 7; Decauville, 7; Serpollet, 5; Peugeot, 5; Richard, 5; C. G. V., 2, and Daimler-Mercedes, 2. It must be noted that while most of the cars were entered by their makers, with special pro-



LEAVING THE STARTING LINE
From *Le Monde Illustré*

visions for repairs by the way as well as mutual assistance on the road, the Daimler factory was not directly interested, and entered no cars, the two Mercedes cars being each entered by its owner, on his own responsibility; the two, Baron de Forest and Count Zborowski, driving themselves, though having little experience in this class of racing. Twenty of the vehicles, including the five Serpollet steamers, used alcohol, all the others running on gasoline.

Charron, though entered, did not start, neither did Stead. Herbert Austin White, of the English trio, after withdrawing from the Bennett cup race, made a start in his regular place in the Vienna race.

On the Road to Belfort

The first day's run, in clear weather and over good roads, was free from serious accidents, but replete with interesting incidents, many of which will never be told. Fournier soon took the lead, with de Knyff second and Edge third. The mishaps began before the little village of Gretz, but 17 kilometers from the start, was reached. That seasoned sportsman Foxhall Keene had astonished the spectators in the morning by starting in ordinary dress, without the complicated paraphernalia of racing; he had gone only a dozen kilometers or so, however, before he ran into the gates at a grade crossing and disabled his car, the first bad luck for the Mors. With him in the same trouble was Fraignac, in another Mors, and a little later a third of the same make, that driven by Rolls, was forced to make a quick stop and burst the two right tires, the steering gear failed, and the car struck a tree, being totally disabled.

Fournier passed through Provins (75 kilometers) at 4.33, leading de Knyff by 11 minutes and Edge by 15 minutes; at Bar-sur-Aube (200 kilometers) he was but 4 minutes 10 seconds ahead, with the two Farmans in third and fourth places. The

special train at times ran close along the highway and the racing cars were not only in view but actually speeding against the train itself. It was at 8 A. M., near Chaumont, between that place and Frotey-le-Vesoul (see map), that the passengers on the train caught sight of a car running at railroad speed in a cloud of dust. Hardly had they recognized Fournier when his car slowed down, then stopped, and he straightened up in his seat and threw up his hands in a way that signified that he was out of the race, the fourth mishap for the Mors. The break, which is ascribed to one of the gear shafts, was beyond repair, and the winner of Paris-Berlin was compelled to retire. Shortly after the stop de Knyff rushed past, then came Maurice Farman, who, seeing that Fournier was in serious trouble, made a stop at the loss of three minutes, but resumed the course when he found that the break was beyond all aid.

The special train rolled into Belfort at 10 A. M. to find the place in a buzz of excite-

ment, the inhabitants having been out since early dawn, though it was certain that the first car could not arrive before the middle of the morning. The whole town was *en fete*, the streets filled with gaily dressed crowds and the buildings decorated with flags and streamers. The city authorities had erected a triumphal arch of flowers and banners at the control, which was excellently located. The road from Paris led down a long straight hill, with a row of trees on each side, the timing station being on a slight rise just beyond the foot of the hill; the cars consequently approached at full speed, being visible for a distance, while the up grade helped them to stop quickly at the control. A big clock was suspended in full view. Every precaution was taken to prevent accidents, three companies of infantry were under arms, stationed at short intervals on each side of the road for a distance of 1,200 meters, while for the nearer half of that distance ropes were stretched from tree to tree, with a sentry with fixed bayonet at every ten meters. No one was allowed within the lines, even Mr. Serpollet, who wished to take a picture, being expelled. For a distance of two kilometers trumpeters were stationed at intervals of one hundred meters, each signaling in turn the sighting of a car.

From about 8 A. M. the crowd expectantly awaited the first comer; at 9 o'clock the bugles sounded and a Mors car approached, the photographers stood ready to shoot and the excitement was intense. As it happened it was Mr. Huillier, the manager of the Mors company, running over the course; he was promptly taken in charge by the officer in command for having broken the rules and trespassed on the course. By degrees the rumor of a mishap to Fournier spread through the crowd, but no details were known. At 10 o'clock the bugles again sounded and again all were on edge, this time over Mr. Deutch, another non-racer who shared the fate of his predecessor. Another impatient



AT THE PROVINS CONTROL
Mme. Grus, while awaiting her husband on No. 66, offering a bowl of soup to Louis Renault
From *La Vie Illustrée*



BELFORT CONTROL—ARRIVAL OF H. FARMAN
From *Le Monde Illustré*

wait of three-quarters of an hour and the bugles rung out again, this time announcing a large and powerful car that rolled in at a speed approaching the hundred kilometers; as it separated in a measure from the surrounding cloud of dust the first view disclosed not a Mors but a Panhard, and then as the speed slackened and the dust dispersed, the bearded face of de Knyff appeared. The timer, Mr. Tampier, advances and signs the card as the crowd cheers, the time being 10:47:30.3-5, an average speed of 90 kilometers. A bicyclist whose sky-blue arm badge marks him as a guide comes forward to lead the way, Mr. de Knyff putting his car in motion, and they pass on to the wagon house of the garrison, near the drill field. An interval of over twenty minutes and there comes another Panhard, driven by Henry Farman, then a third but three minutes later, Maurice Farman, bringing to the anxious crowd the first reliable news of Fournier's mishap. Three minutes more and a fourth Panhard rolls in, Jarrott; a fifth, Pinson; and a sixth, Teste; at 11:45. Twenty minutes later comes the first of the light cars, the voiturette driven by Louis Renault, followed by Edmond in a Darracq and Zborowski in the Mercedes. Up to midnight 91 cars had arrived.

The good work of de Knyff gave him one prize and the first chance at a second; being the first user of alcohol to reach Belfort he won the cup given by Prince Peter of Arenberg, and in addition he had a lead of nearly two hours over Edge, the only remaining competitor for the Bennett cup. His time for the distance of 408 kilometers (253 miles) was 4:16:30. The times for the day will be found in the final table.

The course for the second day lay for the

first 35 kilometers through France, then the Swiss frontier was crossed just beyond Delle and the ascent of the Jura Mountains began.

The first card, that of Rene de Knyff, called for a start at 4 A. M., and about 2:30 the drivers made their way to the "parc." Each driver with his assistant entered the enclosure as his name was called, started the motor and ran the car outside, where he was free to examine, adjust and oil at will; of course in his own time. It is safe to say that no time was lost under these conditions, but at the earliest possible moment the car was started again and, under the lead of the bicyclist-guide, headed for the eastern gates of the city. Here the scene was interesting, the representatives of the two great tire houses, Michelin and Continental, were ready with tires and tools for immediate and hurried work. Round about were all sorts of cans and cases of

gasoline, alcohol and lubricating oils, with buckets and barrels of water for the Serpollets. It is true that the race was off for the day, but in the excitement that attended the whole event all were just as anxious to hurry on to the finish. Out of the original 137 starters 107 accounted at the control on the previous evening and all but two of these were on hand next morning. W. K. Vanderbilt, Jr., who, by the way, has forsaken Daimler for Mors, withdrew at Belfort, as did Dr. Henry Rothschild, who drove a Mercedes. The latter, though nominally racing, merely accompanied the race to render professional aid, his car being stocked with medical and surgical supplies. The motor cyclists, of whom there were fifteen on bicycles, four on tricycles and one on a quad, had to change their gears before leaving Belfort, to fit the machines for the mountain work. By 8 A. M. the last one had started. The day was warm and bright, with plenty of dust on the roads, but the speed was necessarily low, owing to the entire prohibition of racing and the many controls. The gens d'armes were only too solicitous for the safety of the drivers, often cautioning them to slow down still more or to stop before beginning some dangerous descent. Between Basle and Bruss a long stop was enforced, while detailed instructions were read out, and the police decided that the average speed of the procession was too great, and insisted on the throwing in of the slowest speed. The time allowed for the distance of 312 kilometers (194 miles), was 11½ hours, a speed of but 17 miles; the entire distance was thus neutralized; and further it was divided into four sections, with an officer at each control who delivered to the competitors a card on which was marked the hour at which they might pass the next control. With clear weather, the heat being tempered by a fresh breeze, and much beautiful scenery by the way, the day's run should have been restful and pleasant, but the abundant dust and the innumerable and over-officious guardians made it far otherwise. Rene de Knyff en-



HENRY ROTHSCHILD AT THE START



"ATTENTION! SLOW DOWN."

Collin in Darracq Car (Alcohol) Approaching the Bridge at Bregenz
From *La Vie Illustrée*

tered Switzerland at 4:20 A. M. and by 9 o'clock 97 had passed; at noon the first eleven, led by de Knyff, H. Farman, M. Farman, Edge, Pinson and Louis Renault, had passed through Zurich, 195 kilometers from Belfort. At Rorschach the road touched Lake Constance, following it more or less closely to the Austrian frontier and then for some ten kilometers further to the Bregenz control, at the bridge over the Rhine. De Knyff arrived at 3:40, H. Farman at 3:42:12, M. Farman a minute later, Edge at 3:44:38, Pinson at 3:50:45 and Louis Renault at 3:56:53. The cars were left for the night in the open court of the barracks, the weather being clear.

From Bregenz to Salzburg

The third day brought a continuance of the good weather but very different roads, the region being more mountainous, while in the matter of construction and repair the roads of Austria cannot compare with those of France or even Switzerland. The two events of the day were the decision of the Bennett cup race between de Knyff and Edge, at Innsbruck, and the passage of the Arlberg Mountain. Though a double track had been cleared through the snow by the continued labors of a large force of men, this mountain was considered so dangerous that the propriety of neutralizing it was seriously discussed; however, it was left in the regular route. In spite of the hour, 4 A. M., a very large crowd was present to witness the start, de Knyff still leading and the others following at 30-seconds interval until ninety-three had been checked by the control. Upward and still upward over the mountains the chase continued in much the same order as on the previous day; the

dreaded Arlberg proved quite as bad as anticipated; the descent was dangerous and difficult in the extreme, but it was still a race. The road over the mountain had been cut into deep cuts, which had been leveled by the workmen employed by the Automobile Club of Austria, and filled with loose stones. As the cars passed at speed the stones were thrown in all directions, hitting the drivers and their aids at times.

The American "thank-you-ma'am" has an Austrian parallel in the "dos d'ane," or asses' back. This is a plank or timber placed across the road on the hills, making a step or rest against which the rear wheels of a wagon can rest in ascending, giving the horse a rest. The lower side

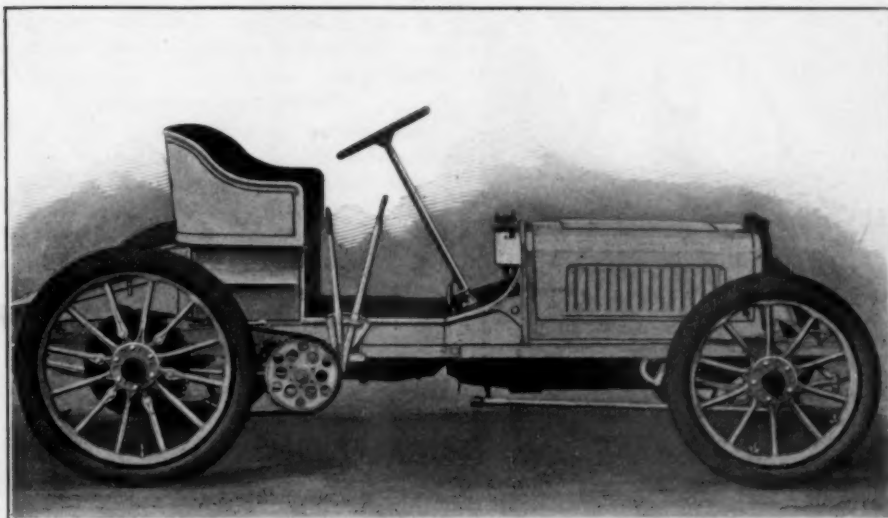
of the obstruction is banked with earth to make the ascent easy, but in descending the timber makes a serious obstacle. These were found in abundance, in company with another obstruction, the "caniveau," an open culvert across the road, with a wooden bottom and the sides paved with stones. All went well with the leader until within some 25 kilometers of the finish of him; at a sharp turn in the road at Innsbruck, when his differential broke and left him helpless. Here he was passed by the two Farmans, Renault, Zborowski and, worst of all, Edge.

The latter had his troubles still ahead of him; at a sharp turn in the road he saw ahead the blue warning flag and put on the brakes, the car skidded and left the road, bringing up in a ditch fifteen feet below. The bottom was of soft earth with turf and shrubs and the car was little injured; the ditch sloped upward and by running the car backward for some distance it was brought to the level of the road by its driver and his assistants. The direct consequences of this accident were bad enough, but the indirect nearly robbed him of the race. Seeing his plight, a party of friendly peasants rushed to his aid, in ignorance that by the conditions of the cup a car must be handled under all circumstances by its own crew alone. It was impossible to explain this in English to Austrian mountaineers, and it was with great difficulty that Mr. Edge kept them from interfering as he and his cousin ran the car back to the road. The incident was reported in such shape as to threaten the loss of the cup through disqualification, but this version has apparently been accepted, and the cup has been awarded to him; a fitting reward for his perseverance in racing, his good work on the Napier car, and his steady and reliable driving.

The finish at Salzburg found an entire



THE SWISS CUSTOMS AT MEUDON—Mme. Lockert's Car
From photo by Mme. Lockert



THE PEUGEOT RACING CAR
From *La France Automobile*

new set of leaders; de Forest was first, with his Mercedes, at 1:34:20; Henry Farman next at 2:17:50; Louis Renault at 2:18:50; Zborowski, with another Mercedes, at 2:25:25; Edmond at 2:33:15; Bertheaux, with a 24-h.p. Panhard, at 3:10:50; and Maurice Farman at 3:12:40. Several bad wrecks were reported, but no one was seriously injured.

As Louis Renault, the leader in the light class, was waiting to start from Innsbruck de Caters came up at speed in his heavy Mors car and struck the Renault, smashing both wheels on the right side. Nothing daunted, Mr. Renault procured some wood, and, with a knife, shaped new spokes and repaired both wheels in a most skilful manner. These repairs cost him four hours' delay, which fact he had certified by the officials. On the way to Salzburg he was again delayed by a broken wheel and only arrived at 8 o'clock, some six hours later than the little group of leaders with which he had kept company up to the time of the collision. He demanded of the committee that the four hours lost in repairs should be deducted from his running time. The people of Salzburg had prepared to welcome the visitors, the whole city being gaily decorated and the day being observed as a holiday.

The Last Day's Run

The course for the last day was over a distance of 335½ kilometers, the roads being poor in places but much better than on the preceding stage. The starting intervals were arranged according to a special plan, the committee being at liberty to vary the intervals between the first five from three to fifteen minutes; all others being allowed two minutes start. Henry Farman was first away at 6.30, followed by Edmond at 6.45, Zborowski at 6.48, Pinson at 6.53, then Teste, de Forest, M. Renault, M. Farman and the others at two-minute intervals. The list by this time had fallen to seventy-seven vehicles

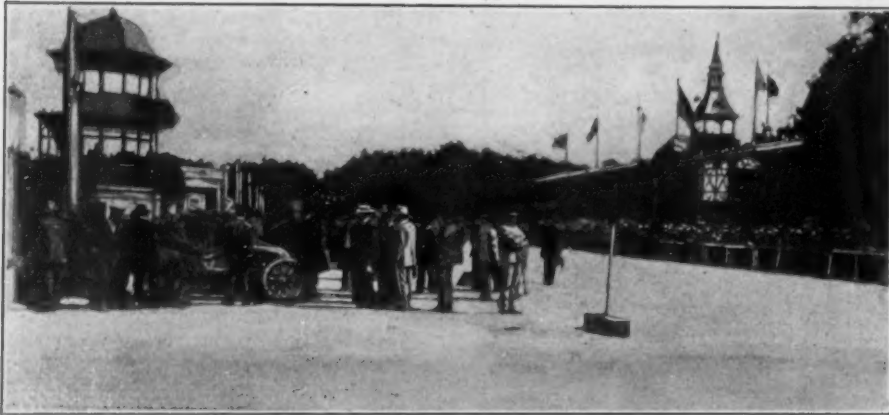
his fuel tank, and he was compelled to finish in tow of a friendly car, of course being disqualified.

The End of the Course

All Vienna was in the streets on Sunday, still another clear day, to witness the finish; those directly interested assembling at the trotting course on the Prater. The Automobile Club of Austria and the Automobile Club of France were well represented, with all the leading lights of the sport and the industry. Owing to the court being in mourning for the death of the King of Saxony, the Emperor Francis Joseph was not present in person nor was he represented. It was expected that the first cars would arrive about 2 o'clock, and promptly on time Marcel Renault approached through the city at full speed. It was with some difficulty that he found the main entrance to the track, being directed first to the entrance for pedestrians, but he finally entered and made the round of the course, being crowned with laurel when he stopped. His position as winner was imperilled, however, by a mistake for which it seems probable that he is hardly responsible. Instead of stopping at the Floridsdorf control and running slowly in to the track, taking 45 minutes for the five miles, he went past the control at speed and did not slacken down until he reached the trotting track. It is claimed in his behalf that while all the important controls were conspicuously marked so that even the driver of a racing car could discern them, the last control was in a small village, marked only by one flag, and with nothing to attract or to indicate its true importance. After due consideration the committee decided to award the



MARCEL RENAULT ENTERING VIENNA
From *L'Illustration*



THE COURSE AND JUDGES STAND AT VIENNA
From Cycling

first prize to Mr. Renault in spite of the irregularity of the finish. The second in was Zborowski, 22 minutes after Renault, then Maurice Farman, Baras, Edmond, Hemery, de Forest (in tow), Berteaux and Henry Farman. An unlucky puncture toward the end had robbed the latter of the public honor for some good work over the whole route. The official times of the finish were: Marcel Renault, 2:18:7; Zborowski, 2:42:5; Maurice Farman, 2:57:50; Baras, 3:1:36; Edmond, 3:4:49; Hemery, 3:5:48; De Forest, 3:10:49; Berteaux, 3:21:5; Henri Farman, 3:24:51; Chaudard, 3:34:52; Tart, 3:35:58; De Crawhez, 3:49:51; Teste, 3:49:58; De Caters, 3:54:55; Dechamps, 3:58:10; Louis Renault, 3:59:11; Barbaroux, 4:14; Augieres, 4:34; Marcellin, 4:2:36; Collin, 4:3:6; Edge, 4:11:15; Guillaume, 4:12; Rigoliy, 4:24:40; A. Fournier, 4:30:54; Mestayer, 4:34:8; J. de Crawhez, 4:52; Grus, 4:53; Dernier, 4:55:41; Pinson, 5:2:24; Jarrott, 5:2:55; Leger, 5:3:35; Sabit-Bey, 5:5:51; Stephen Ribes, 5:6:46; Cormier, 5:13:55; Conard, 5:20:4; Weigel, 5:28:26; Pirmez, 5:40:3; Comiot, 5:47:6; Leys, 5:55:22; Merville, 5:57:20; Guders, 5:57:30; Chanliaud, 5:58:51; Koechlin, 6:8:17; Perrin, 6:8:29; Ullmann, 6:11:48; Gavaris, 6:13:48; Cozic, 6:16:25; Kirchheim, 6:27:41; Rutishauser, 6:32:17; Osmont, 6:43:54; Volatum, 6:57:13; Bucquet, 7:3:8; Rouquette, 7:27:38; Le Blon, 7:28:24; Loraine-Barrow, 7:30:15; Rivierre, 7:55:6; Stead, 7:59:37; Labitte, 8:2:2; Rieger, 8:14:36; Olliver, 8:35; Durand, 8:45, and Cottard.

The total number of vehicles finishing was 71, out of 137 starters, or 51 per cent. It should be noted that the five Serpollet steam cars, one an ordinary road carriage of last year's make driven by its owner, all came through, not among the leaders, but in a way that testified to their reliability and regularity. Osmont's work on his tricycle and that of Bucquet and Labitte on light motor cycles, is also remarkable considering the length and nature of the course.

It will probably be some weeks before the complete official record is made public, and the only official figures thus far available

are the gross times, including the neutralized section in Switzerland and the fifty-odd cities and villages of France and Austria. The leaders are given as follows:

	H.	M.	S.
Marcel Renault, Renault.....	26	22	43
H. Farman, Panhard.....	26	36	30
Edmond, Darracq.....	26	45	10
Zborowski, Mercedes.....	26	48	09
M. Farman, Panhard.....	26	54	29
Baras, Darracq.....	27	39	50
Teste, Panhard.....	27	48	38
Hemery, Darracq.....	27	58	38
Marcellin, Darracq.....	28	13	30

The award of prizes by the international committee is as follows:

Emperor Francis Joseph's prize for first French car, Marcel Renault. President Loubet's prize for first non-French car, Count Zborowski. Ladies' prize for second time, Henry Farman. Prince Furstenberg's prize for first arrival at Vienna, Marcel Renault. Count Schoenborn's prize for second arrival at Vienna of heavy class, Maurice Farman. Margrave Pallavicini's prize for second time in light class, Edmond. Gordon Bennett cup, S. F. Edge. Prince d'Arenberg prize first alcohol car on first day, Rene de Knyff.

The following table is unofficial, but gives as completely and accurately as is now possible the record for each car. It should be noted that owing to the very peculiar arrangements in Switzerland Zborowski was penalized by the addition to his actual rac-

ing time of forty-five minutes, as a punishment for having passed a Swiss control ahead of time.

The Renault and Napier Cars

The winning car is one of three built specially for this race, with four-cylinder motors but after the same plan and details as the regular cars. The nominal h.p. is 16 but the motors work up to 22. The firm also started four of its regular cars in the voiturette class, of which three finished at Vienna. All of these cars have the longitudinal transmission with universal joint (cardan); the cooling is by thermo-siphon, and there are three speeds, the highest being direct and the other two through the change-gears. Admirable as it was, the showing of this firm would have been very much better but for the mishap to Louis Renault, through no fault of his. The Renault car is notable mainly for the consistent good work in both design and construction which has always marked the work of this firm; in addition to this the cars were boldly but carefully handled by both brothers.

The Napier in which Mr. Edge won the Gordon Bennett cup has four cylinders, each 5 by 5 ins., with four-port inlet valves, separate exhausts each 2¼ ins. diameter, and the Napier throttling governor.



BUCQUET ON A WERNER MOTOR CYCLE
Winner of the First Prize

The drive is by the Napier longitudinal shaft, direct on the high speed and geared for the two lower speeds and the reverse. The live axle is mounted with roller bearings and the clutch and bevel drive have ball thrust bearings. The body, built chiefly of aluminum, is mounted over the gaso-

RECORD OF THE PARIS-VIENNA RACE

Driver and maker.	H.P.	Weight kilograms.	Times.			
			1st stage. 408 kil. 253 miles.	2d stage. 365 kil. 229 miles.	3d stage. 343 kil. 213 miles.	Full course. 1,120 kil. 695 miles.
1,430 to 2,200 lbs.—Heavy Cars (Grosses Voitures)—450 to 1,000 kilos.						
H. Farman, Panhard.....	70	998	4:18:01	6:16:00	5:51:50	16:25:51
M. Farman, Panhard.....	70	996	4:28:45	7:20:00	4:56:30	16:45:15
Zbrowski, Mercedes.....	40	978	5:01:50	7:00:00	4:55:06	16:56:56
Teste, Panhard.....	70	994	4:45:48	6:46:00	5:52:43	17:24:36
P. de Crawhez, Panhard.....	40	985	5:04:14	7:17:00	5:44:58	17:59:12
Pinson, Panhard.....	70	994	4:50:00	6:52:00	7:09:24	18:51:24
Chauchard, Panhard.....	40	993	6:26:09	7:00:00	5:07:51	18:34:00
Edge, Napier.....	40	933	6:03:28	7:59:00	5:48:15	19:50:43
Augieres, Mors.....	40	998	7:12:14	7:51:00	5:17:34	20:30:48
de Caters, Mors.....	60	1007	6:03:18	9:27:00	5:07:55	20:38:13
Leys, Panhard.....	70	985	6:13:36	8:52:00	7:34:30	20:46:03
Jarrott, Panhard.....	70	982	4:26:09	10:08:00	6:27:55	20:55:04
Sabit-Bey, Panhard.....	40	996	6:28:27	8:53:00	6:16:51	21:38:18
J. de Crawhez, Panhard.....	40	995	7:21:00	8:02:00	6:25:00	21:48:00
Gavaris, Panhard.....	24	876	7:41:07	9:30:00	7:00:48	22:11:55
Chanliaud, Serpollet.....	12	959	6:00:14	9:21:00	7:07:51	22:29:05
Merville, de Dietrich.....	16	882	8:02:57	9:53:00	5:44:00	23:39:00
Le Blon, Serpollet.....	12	970	6:57:14	9:22:00	8:25:24	24:44:32
Rutishauser, Serpollet.....	12	978	11:35:55	9:33:00	9:27:17	27:36:12
Olliver, Serpollet.....	12	906	8:43:44	10:42:00	9:15:15	28:40:59

Cottard, Serpollet	12	987	9:07:31	9:56:00	10:21:12	29:24:43
de Forest, Mercedes	40	980	6:09:18	5:23:00	.....	.....
Axt, Panhard	40	985	7:32:56	11:15:00	.....	.....
R. de Knyff, Panhard	70	988	4:16:30	.....	.....	.....
Giraud, C. G. & V.	60	990	5:10:25	.....	.....	.....
Heath, Panhard	60	987	8:40:23	.....	.....	.....
Gras, de Dietrich	16	980	7:27:33	.....	.....	.....
Vanderbilt, Mors	40	996	7:43:01	.....	.....	.....
Austin, Wolseley	30	991	17:53:00	.....	.....	.....
Walcker, Chenard-Walcker	30	912	7:33:05	.....	.....	.....
P. Meyan, de Dietrich	16	864	8:22:00	.....	.....	.....
H. de Rothschild, Mercedes	40	994	7:39:50	.....	.....	.....
Belamy, Mercedes	40	990	6:14:28	.....	.....	.....
Fournier, Mors	60	1003	.....	.....	.....	.....
Gabriel, Mors	60	987	.....	.....	.....	.....
Foxhall Keene, Mors	60	981	.....	.....	.....	.....
Girardot, C. G. & V.	60	991	.....	.....	.....	.....
Cuchelet, Peugeot	50	999	.....	.....	.....	.....
Rolls, Mors	60	1007	.....	.....	.....	.....
Renaux, Peugeot	50	1000	.....	.....	.....	.....
D'Arnaud, Mors	40	996	.....	.....	.....	.....

880 to 1,430 lbs., Light Carriages (Voitures Legeres), 400-650 kilos.						
M. Renault, Renault	16	645	5:31:05	6:07:00	4:08:36	15:46:41
Edmond, Darracq	24	630	4:46:58	6:27:00	5:19:49	16:50:47
Baras, Darracq	24	630	5:03:28	7:45:00	4:58:36	17:47:04
Hemery, Darracq	24	640	5:10:25	7:46:00	5:11:48	18:09:50
Marcellin, Darracq	24	649	5:29:57	6:48:00	5:59:36	18:17:33
Berteaux, Panhard	24	642	5:31:49	7:51:00	5:14:57	18:45:46
Tart, Clement	20	632	6:00:07	7:58:00	5:16:52	18:52:59
Barbaroux, Clement	20	635	6:20:35	7:36:00	5:35:04	19:37:39
Collin, Darracq	24	638	5:47:31	8:10:00	5:42:06	19:39:19
Dechamps, Dechamps	20	649	7:13:11	7:51:00	5:13:10	20:17:21
Ach. Fournier, Gobron-Brillie	18	643	6:13:10	8:19:00	5:59:54	20:36:04
Dernier, Gobron-Brillie	18	632	6:12:44	8:41:00	6:16:41	21:10:25
Rigolly, Gobron-Brillie	18	635	4:53:04	10:16:00	5:19:40	21:28:44
Weigel, Clement	20	623	7:39:44	7:03:00	6:51:41	21:34:25
Louis Renault, Renault	16	634	5:01:49	10:20:00	4:49:51	21:39:10
Mestayer, Decauville	18	637	5:57:28	9:04:00	5:41:08	21:42:36
Ulmann, Decauville	18	641	6:43:02	7:47:00	7:38:48	22:08:50
Conrad, Gobron-Brillie	18	626	6:44:14	9:30:00	6:21:04	22:35:18
St. Ribes, Panhard	24	645	8:21:55	9:10:00	5:45:36	23:17:41
Leger, G. Richard	16	641	8:56:15	8:31:00	6:02:35	23:29:50
Cozio, Dechamps	20	647	6:47:01	10:15:00	6:49:25	23:51:26
Pirmez, Delahaye	16	610	8:13:43	9:23:00	6:53:00	24:01:46
Rouquette, Peugeot	16	650	8:53:00	7:56:00	8:08:38	25:07:00
Perrin, Delahaye	16	637	11:17:25	7:29:00	6:29:29	25:25:54
Berrue, Gobron-Brillie	18	646	7:52:23	9:24:00	8:11:23	25:27:46
Stead, G. Richard	16	628	6:44:38	9:50:00	8:57:00	25:31:28
Comiot, Clement	20	628	7:29:07	10:38:00	5:56:06	25:57:15
Lorraine Barrow, De Dietrich	15	650	8:20:45	10:47:00	7:57:15	26:34:00
Koechlin, Gobron-Brillie	18	643	11:38:00	6:52:00	6:33:17	26:34:10
Guders, Panhard	24	644	12:51:23	7:57:00	5:46:05	26:34:27
P. Riviere, Dechamps	20	660	7:33:31	10:30:00	9:48:00	27:51:31
Kirchheim, Fahrzeugfabrik	15	630	8:25:04	12:27:00	7:20:41	28:12:45
De la Toulloubre, Decauville	18	643	7:37:42	10:07:00	11:07:00	28:41:42
Pago, Decauville	18	649	9:28:45	11:15:00	10:31:27	31:15:12
Marot, Decauville	18	642	9:57:47	11:27:00	10:43:00	32:07:47
Corailieu, Decauville	18	643	13:47:25	13:42:00	10:17:22	37:46:47
Legrand, Crouan	12	644	8:12:00	.....	8:27:00	.....
Dupont, Liberia	12	629	13:12:15	.....	9:14:00	.....
Volatum, Clement	20	633	6:41:02	14:12:00	.....	.....
Wehrle, Darracq	24	644	5:55:13	10:10:00	.....	.....
Max, Darracq	24	645	5:17:12	.....	.....	.....
Thery, Darracq	18	642	5:48:55	.....	.....	.....
Salleron, G. Richard	16	648	5:53:35	.....	.....	.....
Godard-Desmaret, Mors	20	646	11:06:00	.....	.....	.....
Ravenez, Decauville	18	646	12:19:32	.....	.....	.....
Fouret, Cotteneau	16	650	8:34:31	.....	.....	.....
Gaste, Automotrice	12	567	11:27:00	.....	.....	.....
Tencarts, Dechamps	20	650	.....	.....	.....	.....
Domptet, Clement	20	618	.....	.....	.....	.....
Clement, Panhard	24	644	.....	.....	.....	.....
Calliois, Peugeot	16	643	.....	.....	.....	.....
Valentin, Ste Telephones Ader	15	607	.....	.....	.....	.....
Simon, Ste Telephones Ader	15	607	.....	.....	.....	.....
Doriot, Peugeot	16	650	.....	.....	.....	.....
Varlet, Delahaye	16	628	.....	.....	.....	.....
Gondoin, Panhard	24	649	.....	.....	.....	.....
Domptet, Clement	20	646	.....	.....	.....	.....
Lefebvre, Clement	20	644	.....	.....	.....	.....
Marnier, Automotrice	12	580	.....	.....	.....	.....
Duray, Gobron-Brillie	18	646	.....	.....	.....	.....
Louvet, Renault	16	644	.....	.....	.....	.....
Fraignac, Mors	20	657	.....	.....	.....	.....

Not over 880 lbs.—Voitures—Not over 400 kilos.						
Gillaume, Darracq	12	398	6:23:25	6:59:00	5:57:00	19:19:28
Gras, Renault	8	398	6:39:10	8:05:00	4:12:16	20:56:26
Cormier, Renault	8	400	8:31:14	8:29:00	4:16:55	23:25:09
Durand, Corre	8	397	8:17:32	8:28:00	9:17:20	26:02:52
G. Riviere, G. Richard	10	396	7:59:15	10:09:00	8:04:06	26:12:51
G. Richard, G. Richard	10	397	9:35:48	10:48:00	8:49:29	29:12:17
Lamy, Renault	8	397	11:34:34	8:24:00	9:36:00	29:34:24
Buchillet, Corre	8	400	8:13:04	10:35:00	11:31:00	30:19:04
Oury, Renault	8	397	6:19:44	7:58:00	.....	.....
Marbais, Darracq	12	394	6:52:55	.....	.....	.....
Theillier, Passy-Theillier	8	396	10:40:14	.....	.....	.....
Enke, Fahrzeugfabrik	8	387	14:26:24	.....	.....	.....
Hanriot, Aut. nationale	12	397	.....	.....	.....	.....
Villain, Prunel	12	398	.....	.....	.....	.....
Corre, Corre	8	397	.....	.....	.....	.....
Not over 550 lbs.—Quads and Tricycles (Motorcycles) not over 250 kilos.						
Osmont, De Dion-Bouton	7	210	6:32:22	10:48:00	7:28:54	24:41:16
Holley, De Dion-Bouton	7	230	10:18:47	13:27:00	6:41:13	30:27:04
Bardeau, De Dion-Bouton	7	230	6:17:02	.....	.....	.....
Lazon, De Dion-Bouton	7	218	7:39:12	.....	.....	.....
Bardin, De Dion-Bouton (quadri)	7	240	8:43:00	.....	.....	.....
Not over 110 lbs.—Motor Bicycles—(Motocyclettes) not over 50 kilos.						
Bucquet, Werner	2	45	7:56:30	10:43:00	7:26:08	26:10:38
Labitte, Werner	2	45	8:31:10	11:15:00	8:06:02	27:42:12
Podsensick, Laurin-Klement	3	50	8:12:02	16:48:00	10:12:00	35:12:02
Rieger, Laurin-Klement	3	50	11:32:53	17:12:00	8:50:36	37:06:29
Derny, Clement	3	48	8:28:30	.....	.....	.....
Dietrich, Laurin-Klement	3	50	17:08:00	.....	.....	.....
Williams, Clement	3	44	12:24:31	.....	.....	.....
Masson, Clement	3	44	9:48:57	.....	.....	.....
Canesae, Lamaudiere	3	44	.....	.....	.....	.....
Savaux,	3	44	.....	.....	.....	.....
Fontaine, Ste Telephones Ader	3	50	.....	.....	.....	.....
Qcdda, Riviere	3	50	.....	.....	.....	.....
Neron, Bruneau	3	39	.....	.....	.....	.....
Beguign, Bruneau	3	45	.....	.....	.....	.....

line tank, which carries 35 gals. The parallelogram of contact is 7 ft. 7 ins. by 4 ft. 8½ ins.

The Touring Division

On the Saturday preceding the finish of the race the touring division reached Vienna, having left Paris on June 19 and proceeded by easy stages through Auxerre, Dijon, Neuchatel, Interlaken, Ragatz, Innsbruck, Toblach, Klagenfurt and Graz. The party numbered fifty-six, Mr. J. Dunbar



MARCEL RENAULT
Ready for Weighing at Vienna

Wright, vice-president of the Automobile Club of America, being one of them, with a Mors car. The weather was good at the start, but later on rain and even snow were encountered in Switzerland, followed by good weather again. While several accidents are reported, the tour proved a success, thirty-five cars reaching Vienna.

The Welcome at Vienna

On Sunday evening a dinner was given to the visitors by the Automobile Club of



ON THE SCALES AT VIENNA
De Dietrich Car
From Photo. by Mme. Lockert

Austria, over 500 covers being laid and the tables being decorated by the French and Austrian colors. On Monday the racing cars were placed on exhibition in the Rotunda and a steamboat trip to Kahlenberg with a dinner at the hotel and a return by night was arranged. On Tuesday the speed trials over the mile and kilometer courses took place, Osmont, Edmond, Baras and others competing but no important records being broken. A violent rainstorm broke up the meeting suddenly. About twenty cars started on July 4 on the Bosnian tour.



TIRE ENDURANCE TEST

ITHACA, N. Y.—Editor the AUTOMOBILE AND MOTOR REVIEW:—I noticed in a recent issue that one of the principal reasons for the postponement of the Chicago endurance run was the desire to avoid the numerous tire troubles which the rough roads would likely cause. While such a consideration is generous toward the makers of the vehicles, it is, to my mind, hardly in keeping with the original purpose of endurance tests. In fact, it seems that such tests lose their usefulness when run under conditions that make the securing of first-class certificates easy.

If the tires of an automobile are of such importance that tire troubles will mar an otherwise satisfactory run, why, then, should not the item of tire service be made a prominent feature of endurance tests? It is generally acknowledged that the tires represent one of the most troublesome and expensive parts of automobile maintenance. This being so, a tire endurance test, run in connection with a vehicle test, would be as serviceable to the trade and to the users in determining comparative excellence as is the exclusive vehicle test.

I would not recommend that the award of certificates to competing vehicles be influenced by the service rendered by the tires thereon, but simply that a separate score and separate system of awards relative to tires be made, just as separate fuel consumption tables are kept, although in the American runs the fuel consumption has not been considered in the awarding of certificates. Rough roads, on account of the existence of which the Chicago run was postponed, are the kind of roads over which both vehicles and tires should be tested.

All tires should be new and should be divided into classes according to size and the weight of vehicles upon which they are fitted. The number of punctures and other troubles and the time spent in repairing on the road should be carefully recorded by the official observer, this account being kept entirely separate from the record of the service rendered by the vehicle. Thus stops due to tires would not reflect upon the vehicle and stops due to the vehicle would not count against the tires, counter entries in each case being made upon the two records.

All tire repairs should be actually made upon the road and without resorting to extras, such as new inner tubes, valves, etc., the operator being allowed to carry only the regulation repair outfit. If a road repair should be absolutely impossible, the driver of the vehicle should be permitted to

replace the injured tire or tire part, the observer then recording the service of the tires as finished for that run and the vehicle allowed to proceed that it might complete its own test. If a vehicle actually broke down or in some way became incapacitated so that it could not finish the run the tires would necessarily have to be dropped from the contest, although they would not be officially discredited. Some system of credits for service rendered up to the time of the vehicle dropping out of the run might also



The Amphibious Autocar

be arranged, although this would probably be unnecessary owing to the small percentage of vehicles which would not complete the trip.

The principal objection to such a contest is probably that it would not be an attractive one to vehicle owners who would have to furnish their own tires. Most users would

rather engage in a contest where good roads render the likelihood of ruining a set of tires less liable. It is probable, on the other hand, that for such a run the tire makers would be glad to enter tires and fit them temporarily to vehicles engaged in the run. A vehicle, also, could be entered without its tires also being entered, so that if there were more entries of vehicles than of new tires these would not be barred or forced to start with newly purchased tires upon which a record would be kept.

I would be glad to see this topic discussed by the readers of the AUTOMOBILE AND MOTOR REVIEW. A. C. HANSEN.

AUTOCARS ON LAND AND WATER

ARDMORE, Pa., July 16—Editor the AUTOMOBILE AND MOTOR REVIEW:—Perhaps the two photographs enclosed may be of interest to your readers. One shows an Autocar going through 18 or 20 ins. of water at about ten miles per hour. During the recent rain storms, two tourists were caught near Philadelphia, and the road at a point sloped down to such an extent that a small lake overflowed and covered the entire road for about a mile and a half with water. As will be seen by the photograph the carriage is in full operation, running straight through and using the telegraph poles alone as a guide to the road. The machine is of the runabout type and has been driven about 1,200 miles by its owner, who is at the handle.

The second photograph shows the car owned by the writer, who made the run from Philadelphia to Washington in a little less than eleven hours, a distance of 155 miles by the route taken by us. The chauffeur is simply pumping up a tire after ascending a very steep hill, which will be noticed just below. The car on this run consumed about 6¾ gals. of gasoline and was running perfectly when we arrived in Washington city. The only stops made were for breakfast and lunch, with the exception of two for repairs of punctures on the road.

WILLIAM MORGAN.



AN AUTOCAR ON THE ROAD

The Gasoline Vehicle

VI. IGNITION SYSTEMS—THE CONTACT SPARK

Prior to the advent of the automobile, for many years the device most used for igniting the explosive mixtures was what was known as the hot tube. This was a metal tube with one end sealed and the other end screwed into the cylinder head so as to communicate with the combustion space. The end of this tube was kept at a low red heat by an outside flame, and, the tube being normally filled with burnt gases, on the compression stroke these gases would be compressed into the extreme end of the tube by the fresh mixture back of them, and the latter, coming into contact with the hot part of the tube, would ignite when the compression stroke was nearly completed. By giving the tube the proper length and heating much or little of it, ignition could be made to take place early or late as desired; but, once determined, the timing could not be changed except by the insertion of a timing valve at the mouth of the tube. Such a valve was apt to be more trouble than it was worth; and with the rise of the high-speed motor the hot tube was gradually abandoned for various systems of ignition by electric spark. Electric ignition, which is to-day in nearly universal vogue, has the important advantage of being much safer than the hot tube, as it involves no naked flame to ignite the gasoline in case of a spill. It is considerably more complicated, however, and the operator of a gasoline vehicle must perforce have some rudimentary knowledge of applied electricity.

What Makes the Electric Spark

An electric spark suitable for ignition may be produced in two ways, both of which are based on the fact that the interruption of the current in a given conductor will "induce" a momentary current in the same direction in another wire parallel to the first and forming part of a closed circuit. In what is known as the "secondary" or "jump spark" system a short coil of insulated wire, through which the battery current is passed, is surrounded by another coil, insulated from the first and composed of a great number of turns of fine wire, carefully insulated. The ends of this coil are connected in a suitable circuit which includes a small air gap, of $\frac{1}{10}$ in. or less; and a sudden interruption of the battery current "induces" a current in the outer coil, which current is more intense than the battery current in proportion as the number of turns in the secondary coil is greater than the number of turns in the primary. By the insertion of a core, in the shape of a bundle of soft iron wires, in the center of the primary coil, the effect of the induction is greatly intensified, so that the

momentary induced current is able to jump across the air gap in a visible spark. By rapidly closing and opening the primary circuit, a stream of sparks may be obtained.

The soft iron core just spoken of becomes, on the passage of current through the wire around it, a temporary magnet, in which, by the accepted theory of magnetism, each molecule of iron has a little electric current traveling around it in the same direction as that in the coil; and on the opening of the circuit the consequent loss of magnetism by the iron acts as if the core itself were a coil, to induce a momentary excess of current in the exciting coil. By making the coil and core of fair size, this fact may be taken advantage of to obtain a spark sufficient for ignition without the use of a secondary coil. This primary spark, as we may call it, is not intense enough to jump an air gap unassisted; but the needed assistance is given in the act of separating the metal contacts when the circuit is broken. The air gap in that case starts with a length equal to zero, and by the time it has widened the spark has found for itself a path of vaporized metal on which to bridge the gap. This method of producing the spark is first in order chronologically, because the current tensions involved in it are much lower than in the other, making it easier to maintain proper insulation. It is the system most used on stationary and marine engines, and is frequently employed

bing points will rapidly wear and burn away, thus changing the timing of the spark. The latter objection applies to the whole class of "wipe sparkers," even where the rubbing points are inelastic and the spring is outside the cylinder; and most of them have been abandoned for the "hammer-blow" sparker, in which advantage is taken of the momentum of a moving body to produce quick separation of the electrodes. Of this class of devices the apparatus used in the "Long Distance" car is a good example. In this mechanism, which is shown in Fig. 1, the shaft A is rotated by spiral gears (not shown) at the same speed as the cam shaft. It carries the snap cam B, which pushes the pawl C, at the end of the rocking arm D, upward against the spring E. The upper end of this spring bears against the arm F, pinned to the end of a rocking stem G, which passes through the flanged bushing H into the combustion space, and on its inner end carries a finger I. A platinum tip on this finger makes contact with a similar tip on the end of stud J, which is insulated from H and to the outer end of which a wire from the spark coil is connected. One terminal of the battery is connected to the coil and the other to the engine frame. In operation, cam B lifts pawl C and rod K, and the spring carries arm F up till finger I, on the inner end, makes contact with J as shown. Then rod K, which passes loosely through a hole in F, rises still further, compressing the spring, till the cam snaps past the pawl, and the spring, suddenly expanding, causes the nuts L to strike the leather washer M with some force, resulting in an abrupt separation of the platinum tips on I and J.

The spark lead, in devices of this sort, is often varied by carrying C or D on a swing-

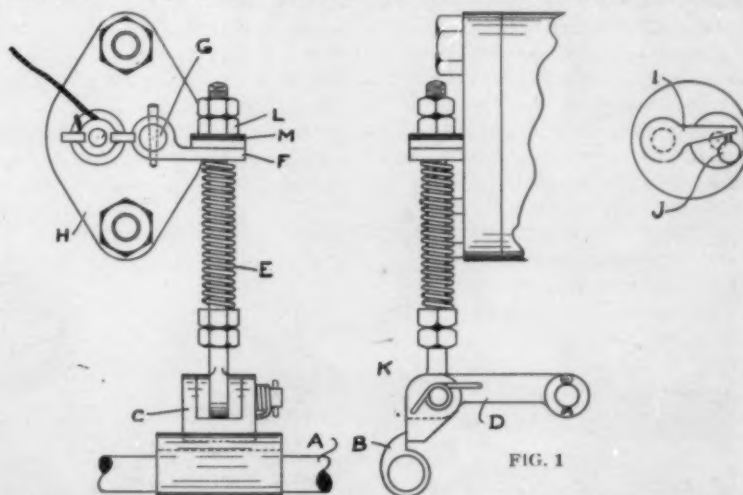


FIG. 1

in automobile motors as well, especially those running at moderate speeds.

In the primary system the size of the spark will depend on the quickness of the break, and the most obvious way of getting a quick break is to snap a springy end of wire past a fixed point. This is impracticable in a gas engine cylinder, however, because the heat will quickly draw the temper of the wire or spring, and because the rub-

bing arm which may be shifted to make pawl C snap off earlier or later, but in the "Long Distance" car the spiral gear on shaft A is made very long, and is splined so that shifting it along the shaft rotates the latter through a certain arc, thus advancing or retarding the cam. The object of pivoting pawl C is to allow it to swing backward in the event of the engine shaft being turned in the wrong direction when starting.



THE GERMAN LAUNCH EXHIBITION

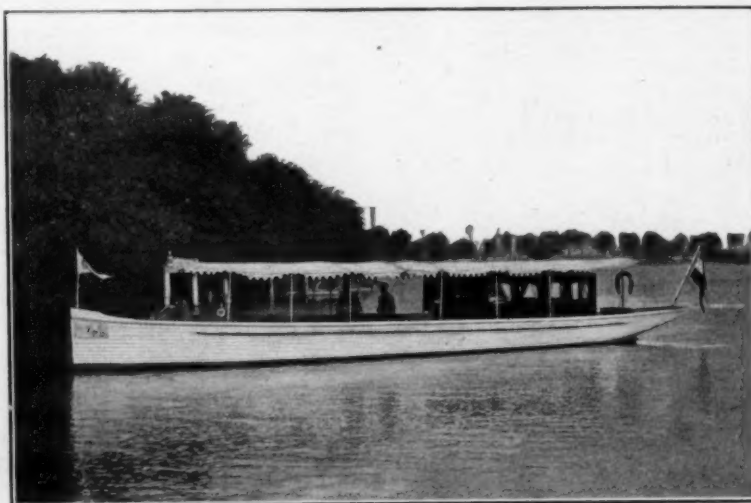
The power launch exhibition, which opened June 15, on the Wannsee, near Berlin, appears to have been a very qualified success as regards the number of craft exhibited, there being only eleven boats all told to relieve the emptiness of the exhibition spaces. The quality of those shown, however, went far to compensate for their paucity of number.

Chief among them was the now celebrated launch Mercedes, with its 40-h.p. Mercedes simplex 4-cylinder motor and hull, designed and built by the yacht designer, Chevau, at Boulogne-sur-Seine.

According to the Daimler Motoren Gesellschaft, owners of the boat, she has a maximum speed of 35.5 km. (22.01 miles), the motor developing 44 h.p. at 1,100 r. p. m. on a consumption of 25.5 lbs. (about 4½ gallons) of "benzine" per hour. This speed, unprecedented for so small a boat, is only obtained by the utmost fining of the lines and paring of weight; and, according to the *Zeitschrift des Mitteleuropäischen Motorwagen-Verein*, the vibration of the frail hull at full speed is so extreme that the passengers see double, and have much ado to keep their teeth from chattering even after the end of a run. With all her lightness, the boat proved her seaworthiness in a cruise from Marseilles to Nice, her performance on that occasion having prompted the probably impracticable suggestion that similar craft be used as despatch boats and tenders to naval vessels.

In maneuvering ability the Mercedes is said to leave nothing to be desired, leaving her little landing at the exhibition with equal ease ahead or astern. Reversing is

accomplished through bevel friction wheels, with a conical friction clutch for the direct drive ahead. According to the *Zeitschrift*, above quoted, the cylinder dimensions are 150 by 175 mm. (about 6 x 7 in.), and if this be correct the Mercedes launch engine is evidently considerably larger than the automobile engine of the same make and nominal (40) horse power,



GERMANIA, ELECTRIC LAUNCH

the latter having cylinders 118 by 150 mm. (nearly 4¾ x 6 in.). As in the automobile engine, magneto-electric ignition is used.

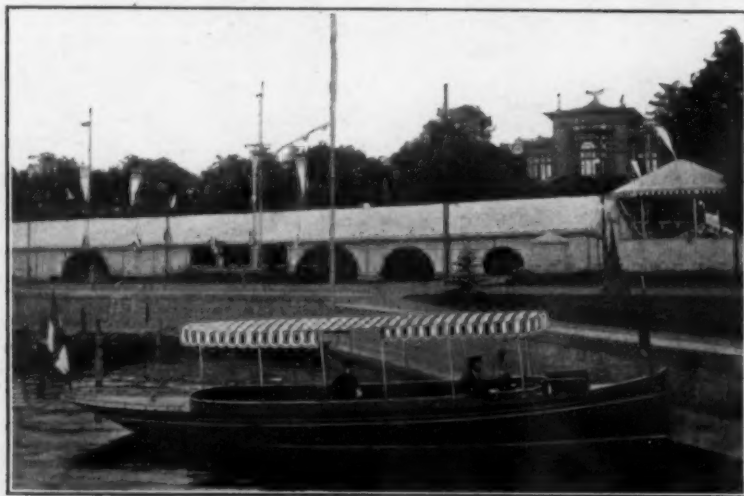
A curiosity at the exhibition is the air-screw boat of Count Zeppelin, this being a boat to which the Count has applied an air propeller, with a view to testing its qualities before using it in his air ship.

The propeller has two blades, each 38 in. long by 14 in. wide and 4 mm. thick. It runs at a normal speed of 850 r. p. m., being driven by a belt running over a pair of conical pulleys, and may by said belt and pulleys be speeded up to 1,500 revs. The motive power is a 12-h.p. Daimler engine. The boat is 38.3 ft. long by 7.3 ft. breadth, carries a dozen passengers and draws only a foot of water. Her normal speed is about seven or eight miles, depending naturally in considerable measure on the wind. She has obvious advantages in shallow and weedy water, and is said to maneuver very easily.

Six boats were exhibited by the Ippen Launch Co., of Stettin, the largest of

which, the Lorelei, was originally built at Zurich in 1891 by Escher, Wyss & Co., as an electric launch with Oerlikon batteries. She was purchased after the electrical exhibition in Frankfurt that year by the Allgemeine Elektrizitäts-Gesellschaft, and by them sold to the present owners. She is of 17 metrical tons development, and is driven by a 12-h.p. Daimler motor, which also runs a dynamo lighting the cabin and supplying a searchlight. She is 50 ft. long on the water line, 10 ft. 3 in. breadth and draws 3 ft. 8 in. The other five boats shown by the same firm ranged from two to eight tons, and were all of moderate powers and speeds.

Three electric launches were exhibited by the Akkumulatorenfabrik Aktien-Gesellschaft, of Berlin. Two were small, of 33 ft. and 29.3 ft. respective lengths, with 4-h.p. motors and speeds of 6½ miles an hour. The third, the Germania, is 65 ft. long over all, 59 ft. l. w. l., and 9 ft. 3 in. breadth. The 4-cylinder motor is rated at 60 h.p. Direct coupled to the motor is a shaft carrying two propeller screws, both 16 in. in diameter, and the forward one of 16 in. pitch and the rear one 18 in. pitch. Ninety cells of battery are carried, and by different groupings of these



HAVEL, ELECTRIC LAUNCH

and of the field windings of the motor six different speeds are obtained, and two reverse speeds. The battery cells have a capacity of 450 ampere hours for six hours. The entire electrical equipment weighs 9 tons. A maximum speed of 11½ miles is obtainable, while at a cruising speed of 8 miles 100 miles can be covered on a charge, or enough for any reasonable requirements on inland waters. We are indebted to the *Zeitschrift des Mitteleuropäischen Motorwagen-Verein* for the accompanying illustrations.

LIGHTS ON LAUNCHES

The following notice, just issued by Col. J. C. Bonner, Collector of Customs at Toledo, Ohio, is worthy of the attention of every launch user. Entirely apart from legal considerations, personal safety and regard for the lives of others demand that every launch shall carry suitable night signals.

The proclamation has been sent to the Toledo, Up-River and Maumee yachting associations and to the custodians of Riverside and Walbridge parks:

"In view of the recent deplorable accident growing out of a failure by a naphtha launch to carry proper signal lights and the widespread dissemination of the facts by the press in connection with the investigations held by the coroner, collector of customs and local inspectors, it would seem as though local small craft owners should have had impressed upon them the need of conforming to the law in the matter of lights.

"It is observed, however, that the Frolic disaster has been less impressive as a warning than would have been supposed possible, and it is found that very many of the pleasure boats operating upon Maumee Bay and river are paying no attention to the legal requirements in the matter of signal lights.

"This evasion of the law must cease and hereafter those who are reported to this office—from any source—as derelict will have visited upon them the full penalty, and, in view of the repeated warnings that

have gone forth, there will be no suggestion of a remission of the penalty, from this office, to those in higher authority.

"Every form of water craft, from a row-boat to a passenger steamer, whether propelled by hand, sail or machinery, when operated in the water of Maumee Bay or river (from Perrysburg on the south), is amenable to the act of Congress approved Feb. 8, 1893, entitled 'An Act to Regulate Navigation on the Great Lakes and Their Connecting and Tributary Waters.' No one operating a boat of any character escapes the provisions of this act. It is in no respect complex and its meaning should make itself apparent to the most meager understanding.

"Every boat owner on the Maumee River is in duty bound to acquaint himself with the requirements and to be governed by them in the operation of his craft. In failing to do so he endangers his own life and places in jeopardy the lives of others, and if there are those whom this latter consideration fails to impress, it would be well for them to understand that burdensome money penalties attach to all violations. After the repeated warnings that have been given, there can be no valid excuse for a violation.



RACING LAUNCH WITH 44 H.P. MERCEDES MOTOR

"No effort has been spared to disseminate the information necessary to a thorough understanding by owners and sailing masters of the legal requirements in the matter of carrying lights, and if there be those still in ignorance they will be put in possession of a knowledge of the law by calling upon the local inspectors or the collector of customs."

A LOST GASOLINE LAUNCH

NEW HAVEN, Conn., July 19. (Special Correspondence.)—While Sheffield Phelps, of Stony Creek, was endeavoring to navigate his houseboat, Nirodha, down the Sound yesterday, and was off the Thimble Islands in a heavy seaway, but a short distance from her starting point, she rolled her gasoline launch overboard and lost her.

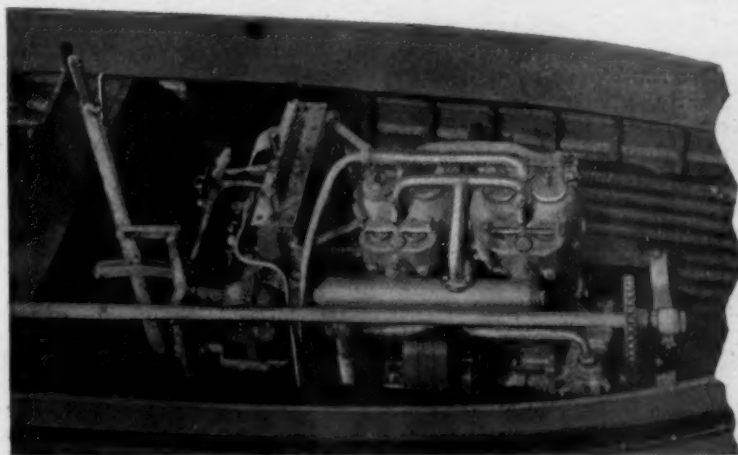
The accident was caused by the launch swinging so violently as to carry away the davits from which she was suspended. Mr. Phelps offers a reward of \$200 for the recovery of the launch, which, although sunk in eight fathoms, may turn over, it is thought, so as to release herself from the motor, and if she does so will come to the surface.

Wrecker Scott, of New London, has been applied to and will send a tug and diving apparatus to the Thimbles to see if the launch can be located.

The Nirodha carries a gasoline engine which furnishes sufficient power to send her along at the rate of about four miles an hour. She was bound to the foot of the Sound at the time of the accident.

Mr. Phelps, when at home, resides at Hackensack, N. J., and has been spending a portion of the summer with his brother, John J. Phelps, at the latter's fine home in the Thimbles. Both of the gentlemen are enthusiastic yachtsmen.

R. W. Brockway, of Moodus, has sold his launch hull at Goodspeed's Landing to Hugh Buckingham, of Deep River, who will fit her with two 5-h.p. Lathrop engines. Last week he was offered \$1,000 for a new boat he has just finished, but he refused the offer.



MERCEDES SIMPLEX LAUNCH MOTOR, 44 H.P.



VOL. VI

NO. 21

Issued every Saturday by
The Class Journal Co.

MAIN OFFICE, 395 B'way, NEW YORK CITY
Telephone 3405 Franklin
Western Office - 356 Dearborn Street, Chicago

OFFICERS

H. M. SWETLAND, President and Gen'l Manager
EMIL GROSSMAN, - - - Vice-President
F. L. SWETLAND, - - - Treasurer

TERMS—\$2.00 per year, 10 cents per copy; foreign, \$3.00 per year, postage paid.

Do not send currency by ordinary mail in payment of subscriptions. Remit by Check, P. O. or Express Money Order, or register your letter.

EDITORS

W. P. STEPHENS, - - - New York
HERBERT L. TOWLE, - - - New York
H. W. PERRY, - - - New York
E. RALPH ESTEP, - - - Chicago

News copy should reach us Monday; telegraphic matter up to Wednesday noon.

Copy for advertising should reach us Saturday, but will be inserted if in hand Monday.

Copyrighted 1902. All Rights Reserved.

Entered June 16, 1902, as second-class matter, Post Office at New York, N. Y.

SATURDAY, JULY 26, 1902

THE PARIS-VIENNA RACE

The very meager telegraphic accounts which appeared immediately after the finish failed to give any idea of the magnitude or importance of the Paris-Vienna race. In fact, no verbal description can do justice to it, and it is only by a study of the many photographs taken at all points of the route, some of which we republish this week from our European contemporaries, that one can realize the vast proportions of the event. Nothing in any way approaching it has thus far been seen in this country, and the future of road racing is as yet so uncertain that it may never be equaled on either side of the ocean.

The question of road racing has two diametrically opposite sides, and there are not a few who are just now urging strongly the negative—the great cost, the uselessness of this outlay, the excessive number of failures and their bad effect on the industry, the encouragement of impracticable construction, and the danger to the lives of both contestants and spectators. There are, it is true, good grounds for these objections, but at the same time there is another side that should not be entirely ignored or depreciated.

It must be recognized that the race, to say nothing of the tour, was a magnificent and convincing demonstration of the motor vehicle as it is to-day and of its possibilities, as well as of the extent of the industry as a whole. Within less than ten years from the construction of the first practical road carriages it has been possible to bring together in one event 138 mag-

nificent machines, some of them, so far as mere speed goes, capable of a sustained speed of 55 miles over good roads. A moderate estimate of the cost of this army of cars would be \$350,000, and a very large sum in addition was expended on the running of each. While some makers may fail to realize adequate returns for their heavy outlay, it does not appear that the industry as a whole will suffer in any way; a satisfactory proof of its permanency and financial stability. While the contest was international, the great majority of cars were of French construction, and it is practically the French branch of the industry alone which has voluntarily assumed this heavy outlay in a single race.

The speed records and the individual work of the speed cars may be ignored as of little importance, the vital point is that out of 138 starters in a race of 900 miles, over an exceptionally rough and dangerous course for more than half this distance, and driven in hot competition under rigid rules, no less than seventy-one cars finished the race; the actual running time for the 900 miles being between 26 and 35 hours. Even the latter figure, made by the average light cars and voiturettes with the motorcycles, is a wonderful showing for such a large number. As to the failures, while a certain number were due to defects of design or construction, and those possibly in some of the most pretentious machines, many were caused by the ordinary ill-luck of a long tour, and many of the withdrawals were due merely to the disinclination of individual competitors to continue in a hopeless race. A careful study of the whole story of the race will show that, freed from controls and similar restrictions, the entire body of cars was capable of covering the course, with all its dangers and difficulties, in average running time of about 30 hours. This alone is a triumph for the new means of travel.

It is too soon yet to discuss the technical lessons of the race, the causes of failure of the new racing cars are not known, and without them a discussion would be useless. We can generalize, however, from the success of the lighter cars to the effect that, as in most mechanical structures, perfection is best obtained by a judicious balance of all parts. The speed cars of the year, built under a weight limit, all carried engines of exceptionally high power, these in themselves apparently being successful, thanks to refined and elaborate engineering; but the frames and transmission systems were too weak owing to the necessary cutting of weights. In the light cars, where the limit of weight was greater in proportion to the power of the motor, no one part suffered unduly, but a good balance of design was maintained. Assuming that the racing cars have proved failures, it is still an open question whether the experience has been a complete loss to the makers; in the light division much has been learned.

Will there be other similar races in Europe? Will the Bennett cup race be run in England next year? Will the road race be imported to this country? These are all hard questions to answer; even now, when comment is rife over the course and management of Paris-Vienna, and the tired drivers and disappointed makers have not done counting the cost, there is a rumor of a Paris-St. Petersburg race for 1903. England has won the great international cup and a race on British soil next year would bring out many French cars and some American as well, of the latter there can be no doubt; but such a race is possible only by virtue of a special act of Parliament, the present laws forbidding it. If permission can be obtained and a successful race run, it will be a stimulus to the industry in Great Britain.

It is evident that as yet the time has not come for a great long-distance race in this country, the roads themselves are not suitable in the event of continued wet weather, the foreign cars that would enter are not fitted for existing roads, and the test itself would be too severe, all things considered, for American vehicles as a class—that is, the regular stock cars. While many American makers would produce special cars for such a race, for the immediate present at least more progress may be made by the further improvement of the standard road carriage for the average private driver.

AUTOMOBILE LIABILITY RATES

New York casualty underwriters have raised the rates on motor vehicle liability to \$100 for each private vehicle, according to the *New York Commercial*, the original rate 16 months ago having been only \$25, since which time it has been increased three times to \$50, \$75 and finally \$100. The standard automobile liability policy provides that the company shall indemnify the owner for loss sustained by the negligence or carelessness of the owner or his employee, the usual limits for these policies being \$5,000 for injury to one person and \$10,000 for a single accident in which more than one person is seriously injured. These policies are new forms of the old team liability policy, the companies having found that the rates applying to the horse-drawn vehicles were insufficient to cover the power-driven vehicles. The companies are likely to be called upon at any time, as agent for the owners, to defend the owner against suit for damages caused to other users of the highways, and it is said that when reckless drivers realize that they are protected by insurance they are not so careful as they would be if they knew their employers had to bear the cost of recklessness. The companies generally find that juries are prejudiced against the owners of vehicles and award the plaintiffs large damages. Four companies are said to be writing such policies now where there were ten a year ago.



FOREIGN INVASION OF CHICAGO

A New Yorker Arrives to Open an Agency for European Vehicles—The Murray Car Represented by Mears & Mather

CHICAGO, Ill., July 19.—(Bureau Correspondence.)—While several French vehicles have been brought here by individual owners and A. C. Bennett has taken the agency for the Darracq, the first notable move toward the establishment of the foreign automobile in the local retail market was made last week, when Thomas Myers, of the Central Automobile Storage and Repair Depot, of New York, arrived with two European machines, with the intention to establish an agency here, and made the statement that other vehicles were following him from the East.

Mr. Myers has made his headquarters at the store of Githens Brothers, 1412 Michigan Ave., and it is probable that he will leave the agency for his line with this firm. The Central company is the regular United States agent for the Mors, Cottareau and Peugeot, and imports other machines also. Mr. Myers is showing in Chicago a Cottareau, Panhard, Marienfeldt and Peugeot. As a side venture he has also for sale a large number of European De Dion sparking plugs which he is offering at a moderate price.

The Advent of Mears & Mather

A recent addition to the Michigan Ave. retail forces is the firm of Mears and Mather, which maintains at 1303 Michigan Ave. the agency for the Murray motor car, made by the Church Mfg. Co., of Adrian, Mich. As with most of the other retail stores here, this firm finds the greatest need is for prompt deliveries from the factory, the possible customers for the little \$600 road wagon being of greater number than the machines which the agency can secure. Mr. Murray, of the Church company, visited the Chicago store this week and reported busy times at the factory, where an effort is being made to rapidly increase the capacity.

Minneapolis Agents After Wintons

A. C. Bennett, Minneapolis agent for the Winton, visited Manager Tucker, of the Chicago Winton branch, yesterday. With him were Harry and Ralph Wilcox, two brothers, of Minneapolis, the former of whom is the purchaser of a Winton touring car which Mr. Bennett had ordered shipped to Chicago from the factory. Its arrival from Cleveland was expected so that the party might leave to-day on an overland trip to Minneapolis. Mr. Bennett has no intention of going out for speed, as he desires to limber up the machine and get it in

smooth running condition on the road home.

Mr. Bennett states that the trade in Minneapolis is just well started and that its future advances will be rapid. Small cars have mostly predominated in the Twin Cities, but the touring car pattern has been introduced this year and is catching the popular notion. The Winton agency has been unable to secure enough Winton touring cars to fill the demand. Mr. Bennett expects to prepare this winter for a big business next season by establishing a combined storage station, salesroom and repair shop. He will stick to the Winton exclusively in the selling department, but will do general storing and repairing. Such a station will be a novelty in Minneapolis.

Wants a Chicago Agency

W. J. Eldridge, who was manager of the local branch of the Milwaukee Automobile Co. until the failure of the concern, is desirous of securing the Chicago representation for some first-class vehicle. Mr. Eldridge has a large local acquaintance and is thoroughly familiar with the automobile business. He may be addressed care of the Western Department, Winton Motor Carriage Co., 1400 Michigan Ave.

CONTROL AND BRAKE TESTS

Certainty of Manipulation of Panhard Machines Demonstrated to Aldermen and Reporters in New York and on Long Island

A little brake test to demonstrate the certainty with which a motor vehicle can be operated in traffic and the efficiency of its brakes was conducted last Wednesday in New York by A. D. Proctor Smith, of Smith and Mabley. Three Panhard machines were used. They were an 8-h.p. car owned by L. A. Ripley and operated by Geo. J. De Whiting; a 12-h.p. car owned by H. S. Harris and driven by H. Armour Smith, and a 12-h.p. omnibus in charge of Leon Laurier. Nearly a score of guests were taken in these vehicles to witness the demonstrations. Among them were Alderman Joseph Oatman, who introduced the motor vehicle ordinance now pending in the council; Alderman Armitage Matthews, chairman of the committee having the ordinance under consideration; W. J. Stewart, chairman of the racing committee of the Automobile Club of America, and Secretary S. M. Butler, of the club; Ivan S. Macdonald, of Detroit; S. A. Lindsay, C. F. Field, C. L. Hughes, Maxwell Bache and half a dozen newspaper reporters. The start was made at 2 P. M. from the Hotel Navarre at Seventh Ave. and 38th St. The bus carried eleven passengers, and each of the others five.

The party was taken at good speed down Seventh Ave. to 34th St., across to Fifth Ave., through 23d St., thence down Broadway to Chambers St., Park Row and Wall St., whose asphalt surface had just been sprinkled, without anything approaching an accident. Several detours through busy side streets were made, including a run down Broad St., whose asphalt paving is full of big, deep holes. After a light luncheon at Delmonico's the return trip was made to the 34th St. ferry. Crossing to Long Island, the party started for Mineola, where the brake tests were made. Miss Eleanor N. Thomas, in a 12-h.p. Panhard, crossed in the same boat, and when the party started on the way along Hoffman Boulevard there was a 3-mile brush between her, operating her own machine, and Messrs. Smith and Laurier. Eventually the daring chauffeur drew away from her competitors on a slight hill.

The brake tests were made on Willis Ave., a side street opening off Jericho Road between Mineola and Roslyn. Aldermen Oatman and Matthews and Secretary Butler acted as judges. A fifth-of-a-mile stretch was measured off and time was taken with a stop watch. Before the tests began H. R. Winthrop drove up in a 15-h.p. Winton touring car weighing 2,000 lbs. and also had a trial. He did not fully understand the conditions, however, and shut off the power before the signal was given. Going at the rate of 27 1/4 miles, he brought his machine to a standstill in 57 feet.

The other trials resulted as follows:

Operator.	Wght.	H.P.	Sp. per hr. M.	Stopping distance.
H. P. Smith.....	2,700	12	30	95 ft. 3 ins.
H. P. Smith.....	2,700	12	20	31 ft. 9 ins.
L. Laurier	2,700	12	34 1-2	106 ft. 0 ins.
L. Laurier	2,700	12	20 2-3	14 ft. 6 ins.
G. J. De Whiting.....	2,300	8	28 1/2	91 ft. 0 ins.

COAST TRADE BOOMING

The Warm, Dry Weather Keeps Golden Gate Dealers Clamoring for Factory Deliveries Despite the Receipt of Several Car Loads

SAN FRANCISCO, Cal., July 16.—Although orchardists in the great fruit counties around San Francisco Bay allege the need of more humidity, the weather is perfect from the motorist's point of view, and orders are from 60 to 90 days in advance of ability to deliver for lack of machines. Carloads of Oldsmobiles, Locomobiles, Whites and Mobiles arrived in the last week, and all have been placed in the hands of customers, yet still the cry of dealers is for more. Agent Libby, of the Century depot, expects a carload the coming week, and E. Brooke Ridley, the recently appointed state agent for the Electric Vehicle Co., is expecting his first carload within a week.

Vice-President and Manager Riley, of the California Automobile Co., says the demand for his company's locally made product, the Calimobile, is considerably in advance of its capacity to supply and that plans are now being drawn for a factory

building double the size of the present one.

Agent Lazarere, of the Mobile agency, has returned, satisfied with the progress made with his wagonette demonstration on Yosemite Valley stage driveway, and is again with the new company that is "stocking" the automobile stage line connecting Placerville and Lake Tahoe. He has placed several machines here and expects to place more, but is far from pleased over a mishap that attended this introductory work four nights ago. Representatives of the new Lake Tahoe Automobile Co. were out testing a machine just received. The trial completed, they attempted a quick run back, neglecting to illuminate the headlight. In the dark the operator did not see the Placerville stage, which was coming from the opposite direction, until it was too late to turn out. One whole side of the stage was torn off and most of the passengers were thrown into the bushes on the side of the road. The horses broke away, dragging the driver a considerable distance. The driver and several of his passengers were injured, but none seriously. The automobile, immaterially damaged, turned back, carrying the passengers to the lake.

A scene on the waterfront the other day was the loading on a coast transport of a lot of Locomobiles. Three of the labels the AUTOMOBILE AND MOTOR REVIEW correspondent had opportunity of seeing were as follows: Cascade Laundry Company, Seattle, Wash.; Dr. O. V. Lawson, Seattle, and Mrs. Harold Preston, Seattle. In the order named they were a Locomobile, a top Locomobile, and a runabout.

BENJAMIN'S SOUTHERN TOUR

The Locomobile Representative Sold 110 Vehicles in Nine States in Eight Months Ground for Franklin Factory to Broken

SYRACUSE, N. Y., July 21.—(Special Correspondence.)—C. Arthur Benjamin, of this city, formerly manager of the Syracuse Automobile Co., has returned from an eight-months' trip through the South in the interest of the Locomobile Co. of America. He is enthusiastic over the results of his trip, having sold 110 vehicles since last November. He was accompanied by his wife during the entire trip up to three weeks ago, when she came home on account of the intense heat. Mr. Benjamin traveled through North and South Carolina, Georgia, Alabama, Mississippi, Louisiana, Texas, Arkansas and Tennessee. He started at Norfolk, Va. He found business much better than it was a year ago when he took a trip South. The winter was colder than usual with 6 ins. of snow in some places, a condition that was unprecedented. At Raleigh, N. C., Mr. Benjamin was introduced to Governor Aycock and, together with several state officials, they went rabbit hunting. The Governor killed seventeen rabbits with seventeen shots. At

Biltmore, Vanderbilt's estate, Mr. Benjamin drove through the parks and was ordered out by Vanderbilt's superintendent for scaring a horse. At Knoxville he met Admiral Schley and took him for a ride. The trip to the top of Lookout Mountain has been sufficiently exploited in the newspapers. Several vehicles were sold in Hot Springs, Ark., although the population does not exceed 15,000. The country is mountainous and the machine was given a good test. Louisiana, Mr. Benjamin says, has sand up to the axles. He visited several cotton and rice plantations and made sales to the planters. At one place 500 negroes were working and ran away upon the approach of the automobile. New Orleans proved to be a good market, and there were a number of motor vehicles there already. They can be used there the year around and there is much good paving and the roads are uniformly good. Mr. Benjamin expects to take a short vacation and then go West. He will have charge of the Chicago agency for the Locomobile company and will take a trip through the West.

A School of Instruction

A. W. Perry, manager of the Syracuse Automobile Co., has inaugurated a scheme which bids fair to develop into a profitable one. He announces that he will teach any one to operate a motor vehicle for 50 cents an hour. Several are now taking lessons. Mr. Perry devotes his personal attention to this schooling and the student is taught the rudiments in two or three lessons. The plan serves two purposes. In the first place it interests a man in the machine and the chances are strongly in favor of his buying one, and the second object is to work up an automobile livery trade. Machines are rented to those who are competent to run them for \$1.50 the first hour and \$1 per hour thereafter. Mr. Perry thinks that the renting part of the business is certain to become an important factor. Many who are enthusiastic cannot afford to own machines. To rent a motor vehicle is as cheap as to rent a horse and carriage. Next year Mr. Perry will have some large machines for renting purposes which can carry a party of four or six. One of the men who is learning to operate an automobile is connected with a telegraph company. His idea is to rent a machine when he wants to hunt up wire troubles in the country. A man is held responsible for a machine while he has it, but is not expected to pay for any repairs that are not directly due to mismanagement. Neither will he have to pay for the time the vehicle is out of commission. Only competent operators are allowed to rent machines.

Storage and Repair Charges

The Syracuse Automobile Co. has issued a new schedule of prices for care, repairs and storage. Some of the prices are as follows: Storing and cleaning, with daily inspection and oiling, \$15 a month; storing and cleaning only, \$10 a month; storing and cleaning only, \$3.50 a week or \$1 a day.

The company charges electric runabouts for \$15 a month, surreys and Victorias, \$20 a month, broughams and large Victorias, \$25 a month. Additional charging is done at one-thirtieth of the regular rate for the month. Carriages are delivered once a day within two miles of the station for \$3 a month. One delivery is 20 cents. For selling second-hand carriages a commission of 10 per cent. is charged and \$5 a month for storage. This does not entitle the owner to the use of the carriage.

Building a 40 h.-p. Touring Car

The H. H. Franklin Mfg. Co. is making a large high-speed machine for Alexander T. Brown, president of the company. It will be completed next month and will cost \$5,000. It is a gasoline machine and will be equipped with a 40-h.p. four-cylinder motor. The carriage will weigh 2,500 lbs., and will be used for pleasure trips. A representative of the company says that the architect who is working on the plans for the new factory has them nearly completed. The factory is to be erected in South Geddes St. Ground will be broken in two or three weeks. The building will be fire-proof, four stories high, 52 by 110 ft., occupying part of the site of two and a half acres recently purchased by the company. The building will be a modern structure and will have a separate power house. It is expected that the company will take possession early in the fall.

BIDS WERE TOO LOW

Parts of Milwaukee Steamers to Be Offered Again at Auction by the Receivers—Cream City Agents Unable to Deliver Fast Enough

MILWAUKEE, Wis., July 21.—(Special Correspondence.)—Parts for twenty steam vehicles were offered for sale by the receivers of the Milwaukee Automobile Co. a few days ago, but the prices offered by the eight or ten bidders, who were all Milwaukeeans, were not high enough and therefore the parts are still in the plant of the defunct company. The entire collection, consisting of tubing, axles, gears, sprockets, bodies and other articles, will again be offered for sale by the Wisconsin Fidelity Trust and Saving Co., the receivers. J. H. Turner, of the law firm of Turner, Pease and Turner, told a representative of the AUTOMOBILE AND MOTOR REVIEW that the highest bid made was \$2,300. A much better figure is expected at the next sale. Speaking of the condition of the plant and the product, Mr. Turner said: "The receiver has disposed of thirty-seven completed vehicles. About twenty were shipped to Chicago and sold there at prices ranging from \$500 to \$700. The remaining vehicles were sold to Milwaukeeans and individuals throughout Wisconsin."

The few automobile agencies in this city are being kept exceedingly busy, and in fact they are in turn keeping some of the factories busy to a certain extent. Some of them say they cannot fill the orders on

hand and therefore are unable to satisfy customers who want vehicles in a hurry.

The T. Jonas Cycle Co., handling the Haynes-Apperson and the Oldsmobile, has sold a dozen machines in the past six weeks. Three Olds mobiles were delivered to purchasers since July 1. Among those Mr. Miller, who is associated with Mr. Jonas, said that several customers were waiting for Haynes-Apperson machines which they ordered several weeks ago. "They must be very busy at the factory," said he, "as we notified the manufacturers that the machines were desired immediately. Three Milwaukee people are now waiting for vehicles and others are in hopes that we will deliver quickly."

TUBING PLANT FOR MCKEESPORT

The United States Steel Corporation has accepted the offer of the citizens' committee of McKeesport, Pa., and will erect an immense steel tubing plant there, according to an announcement made by members of the committee. The committee succeeded in securing options at \$750,000 on all but three plots of ground on the site desired by the corporation. The three plots will cost \$20,000, which sum will be raised by the committee. The site covers a total area of fifteen blocks, bounded by the river, Fourth Ave. and Market and Martin Sts. The plant in McKeesport is expected to cost in the neighborhood of \$10,000,000. The decision to locate there is taken as an indication that the proposal to build a big tube plant in Conneaut, Ohio, has been abandoned, but it is still thought probable that the proposed removal of the steel plant from South Chicago and the erection of a \$10,000,000 tube plant in Lorain, Ohio, will be carried out.

BARRED FROM YELLOWSTONE PARK

The authorities of the Yellowstone National Park evidently look upon motor vehicles as being dangerous, and upon their recommendation Secretary Hitchcock, of the Department of the Interior, has ruled to exclude them from the park. As the enforcement of this ruling would establish a bad precedent, the National Association of Automobile Manufacturers is to make an effort to have the government reconsider its discrimination against the self-propelled vehicles.

C. C. Hildebrand, New York agent for the International Motor Car Co., is conducting negotiations for the establishment of a large agency for the Toledo steam and gasoline vehicles in Switzerland, with headquarters in Geneva and branch agencies in other cities.

Representatives of a Trenton, N. J., syndicate arranged July 14 for the establishment of a motor stage line between Mount Holly and Burlington, N. J. The machines will be running in a few weeks.



AN INFLUENTIAL CLUB

Summer Residents of Massachusetts Coast Resorts Organize North Shore Club to Suppress Speeding and Set a Good Example

Boston, Mass., July 21. (Special Correspondence.)—The North Shore Automobile Club has been organized by a number of the prominent members of the summer colony of North Shore, who have elected Walter D. Denegre, of New Orleans, to the presidency; Dr. Charles T. Parker, of New York, vice-president, and Quincy A. Shaw, Jr., of Boston, secretary and treasurer. These, together with H. P. McKean, of Philadelphia, and Gerard Bement, of Boston, constitute an executive committee of five.

Motor vehicles have been growing more and more numerous along the shore in the last few years, but not until this season has there been any attempt to organize the users. This season it was deemed advisable that certain restrictions should be agreed upon for governing the use of the machines on the roads in this district. The organization meeting was held at the house of W. D. Denegre, of New Orleans, at Beverly Farms.

Statement of the Objects

In stating the objects and aims of the organization, Secretary Shaw said: "The members of the club have determined to affix to their machines club signs, with large numbers, that they may be identified and may be distinguished from persons whose reckless running is tending to make the use of motor cars unpopular. The club hopes to discountenance excessive and unreasonable speed, and to encourage more careful handling of automobiles. Realizing that there are certain roads on which the use of automobiles for touring purposes is unreasonable, the club has resolved that members will not use certain residential roads unless for the purpose of going to or leaving some residence to which the road is the approach. Any communications or complaints which the residents of the North Shore may wish to make concerning automobiles will receive consideration at the hands of the club, if addressed to the secretary.

Prominent Members

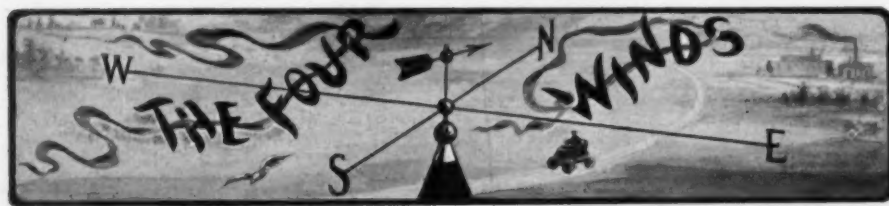
The membership list includes Messrs. Leonard Ahl, Gerard Bement, Reginald Boardman, T. Dennie Boardman, E. C. Fitch, F. W. Fabyan, John T. Morse, Jr., Max Norman, John L. Saltonstall, Quincy A. Shaw, Jr., W. A. Tucker, John A. Burnham, Jr., E. C. Fitch, Jr., J. B. Moulton, John Lawrence, Adelbert Ames and John

Phillips, of Boston; Walter D. Denegre, of New Orleans; H. C. Frick, of Pittsburg; H. P. McKean, of Philadelphia; F. M. Whitehouse, Dr. Charles T. Parker, James Proctor, of New York; H. C. Pierce, Eben Richards, of St. Louis; C. C. Walker, of Chicago.

A number of interesting machines are included in those owned by members of the new organization. Mr. Frick has a big Mercedes, Mr. McKean a Peerless, Mr. Pierce a Darracq, Mr. Denegre a Packard touring car; Messrs. Fabyan, Fitch and Ahl all have Winton touring cars; Messrs. Moulton, Bement and Boardman have steamers made by Stanley Brothers; Messrs. F. H. Prince and F. H. Prince, Jr., have White steamers; Max Norman has a Packard and a White steamer; Messrs. Shaw, Saltonstall and Phillips have Long Distance cars and Mr. Shaw also has a large gasoline machine which he built himself; Dr. Parker has a heavy gasoline carriage, driven by an Upton engine, which he built over last winter from the large Gasmobile used by him the season before, and he has also a Gasmobile Stanhope; Mr. Walker has a big Mors car and Mr. Whitehouse a Locomobile.

SPECIAL EVENTS AT BRIGHTON BEACH

In addition to an Australian pursuit race, which has been introduced as a novelty in motor vehicle races by the Long Island A. C., the club has placed in the list of events for its big meeting of August 23 an obstacle race that is expected to prove a surprise to the public in showing the facility with which motor vehicles can be guided and controlled. The start and finish will be immediately in front of the grandstand, and many novel obstacles will be introduced. A third unusual feature which has been decided upon by the club is a 25-mile lap race, each lap to be for the corresponding record, and for a prize of \$5 to the winner of each lap. A purse of \$100 or cup of equal value will be presented to the winner of the race and a \$50 purse or cup to the second finisher. The decision of the club to permit contestants to take their choice of cash prizes or cups so as to permit amateurs and professionals to compete together is a novelty in itself. The racing card comprises ten events at distances from one to twenty-five miles. All vehicles will be given a flying start, which will be less injurious to the machinery than standing starts. All vehicles must be in racing trim, and there are no restrictions as to types of machines.



TO INSTILL HORSE SENSE

Rules by Which Members of the A. C. A. Are Asked to Train Horses to Motor Vehicles and So Reduce Road Accidents

A circular letter to the members of the Automobile Club of America, issued under date of July 12, by the board of governors of the club, asks the members to interest themselves in reducing the number of road accidents by using all possible caution themselves in operating their motor vehicles and to devote an hour every morning personally, or to have their mechanic do so, to training horses in their neighborhoods to not take fright at the power driven vehicles.

Two classes of people have done much to injure the sport and the industry, says the circular letter—those who are inconsiderate and drive their vehicles recklessly on the public roads, and a small number of unskilful owners and operators who do not appreciate the care and skill necessary in operating a self-propelled vehicle until they have met with or caused an accident. The governors of the club divide the causes of accidents into two classes—1. Want of skill in the operator and defects in construction; 2. Frightened horses.

How to Prevent Accidents

"The first class of accidents can be prevented by not driving an automobile until you are competent, and by insisting that manufacturers shall use more care in designing and constructing vehicles," says the letter. "The second class of accidents can be prevented by care in driving an automobile.

"On meeting a horse, if he throws up his head suddenly and puts his ears forward, he is frightened, and he will probably shy. The driver of an automobile should stop his vehicle if the horse continues to be frightened. If he is driving a carriage propelled by a gas engine, the horse can be driven past it with the motor running. The driver of an automobile, if there is difficulty in getting a horse to go by, should himself or have his mechanic lead the horse past the automobile. In doing this the man leading the horse should stand between the automobile and the horse. When a horse is shying away from an object, it is much easier to hold him if he is not shying toward you. Then, too, a man has more strength pulling than pushing. The occupant of the automobile should always call out to the horse when he is passing a vehicle, saying, 'Whoa,' etc., in a loud voice. This frequently will reassure a horse and prevent his shying."

Some of the members of the club have,

with considerable success, it is said, undertaken the training of horses in the communities where they reside to accustom them to automobiles, and every member who can himself, or have his mechanic, if he employs one, is asked "to devote an hour every morning to the training of horses in his vicinity during the next few weeks and to report, on September 1, to the secretary the number of horses he has succeeded in training and the effect his work has had on the community where he resides."

Method for Training Horses

The following method, which has been proved very successful by several members of the club, is recommended:

Select a place, preferably a small square in your town where the road is wide, or a mile of wide road where there are no ditches, if possible. Have the horse or horses to be trained driven five or six miles sharply before the lesson begins. A well-fed animal just taken from the stable is apt to feel so good that he will cut up on the least provocation.

The horse to be trained, if possible, should be harnessed alongside of a horse that is accustomed to automobiles. If this cannot be done, he should be driven. It has not been found satisfactory to lead or ride a horse in breaking him in to an automobile. Under these circumstances he is too free and too little subject to control.

FIRST LESSON

Send the automobile around this square or along the road at about six miles an hour. Have the horse which is to be trained follow the automobile at a distance of about ten feet. He will do this without protest. Let him follow the automobile for about fifteen minutes. Then have the horse pass the automobile, leaving it on the off side or right hand. The horse will probably shy a little away from the vehicle. Do not attempt, if the road will permit, to hold him up to the automobile or to whip him on the near side, but let him shy. As soon as he has passed the automobile he will probably break into a run. Do not check him too suddenly, but speak to him, and he will soon come down to a slow trot. Then have the automobile speed up and pass the horse, leaving him on the off side or right hand. Repeat these operations five or six times for another fifteen minutes. The horse will have become so accustomed to the automobile that he will no longer shy and no longer try to run in passing it. A horse is really a very nervous animal and his lessons should not be too long; thirty minutes is enough for the first day.

SECOND LESSON

The first morning's proceedings should be repeated for say ten minutes. Then the automobile should be stopped at the side of the road and the horse should be turned around so as to face it. The engine of the automobile, if it is a gas engine, should be slowly rotated. The horse will shy a little. He should repeatedly pass the automobile while stopped in this manner for say ten minutes. Then the automobile should be set in motion slowly and he should pass it for ten minutes more, after which he should be sent to the stable. It will be found that he has gained considerable confidence and that he will shy but little. The occupant of the automobile should call out to the horse when he is passing, in a loud voice, "Whoa, boy."

THIRD LESSON

The third morning he should be taken out and made to repeat or review all that he has learned on the first and second mornings, which should occupy fifteen minutes. It will be found that he will probably not shy at all, and the automobile may be speeded up and he may be passed, when facing it, at considerable speed. The horn should be blown gently at first and later on vigorously. The occupant of the automobile should call out to the horse when passing, in a loud voice, "Whoa, boy."

Let the Horse Shy

"It will be found," says the letter, "if these instructions are carefully carried out,

that there are but few horses that cannot be made to pass an automobile going at a high rate of speed with safety in three lessons of thirty minutes' duration each.

"The point we particularly desire to impress upon you is to always let a horse shy in passing an automobile, if the road will permit. There are occasions where the road is so narrow, and the ditch so abrupt, that not only a horse must be kept up to the automobile but he must be struck smartly with the whip to keep him from turning around and to prevent his capsizing the vehicle in the ditch.

"It is quite useless to whip and spur a horse up to an automobile and to try and force him, by giving him pain, not to be afraid of it. It is also a bad practice, in driving a horse past an automobile, to stop the horse and have the automobile proceed past him. He is frightened and very apt to turn around. The proper way is to stop the automobile and let the horse be driven past it.

"We desire to impress on you and on all owners of automobiles that, if the drivers of automobiles would go slowly in passing horses and, if they saw that the horses were frightened, would stop, there would be no accidents caused by horses.

"It is to be remembered that, while the law of most States gives the automobile certain rights on the highways, yet there are times when it is dangerous to drive an automobile at the speed permitted by law. In the State of New York the law provides that no person driving an automobile shall drive the same at any speed greater than is reasonable and proper, having regard to the traffic and use of the highways, or so as to endanger the life or limb of any person."

FREEPORT METHODS CRITICISED

The American Motor League Offers to Defend Members Caught in the District Attorney's Trap—Claimed to Be Illegal

There is much diversity of opinion regarding the methods pursued by District Attorney Nieman, of Nassau County, L. I., in the endeavor to stop the speeding of motor vehicles over the fine roads of that county. Officers of the American Motor League assert that the laws of New York State expressly provide that no town shall pass or enforce an ordinance that will reduce the speed limit to less than 15 miles in sections of villages that are not built up, and the League has announced its willingness to protect any of its members who may be caught in the Nieman trap. Instead of selecting a section of the Merrick road beyond the limits of Freeport village, and arresting persons guilty of driving at a furious speed far in excess of 20 miles, the district attorney had a quarter-mile stretch measured off just inside the limits where houses are few and far between, and posted deputies with stop watches to time them, arresting all who exceeded even by a low

margin the minimum of 8 miles. No signs were placed along the road to designate the corporate limits of the village, which are far from the built-up part of town and are unknown to most persons. This fact has provoked much severe criticism, even from the president and ex-trustees of Freeport village.

Straining the Letter of the Law

Village President James Dean is quoted as saying:

"There has never been a complaint in writing made before the trustees against automobiles speeding through the streets. Had there been we should not only have gone for the motor machines, but the bicycles and wagons as well. I should like to have seen the district attorney call the authorities of all incorporated villages together and arrange for the placing of signs to warn the automobiles of danger in violating the law.

"It is a mistake to make arrests where machines are traveling only a fraction above the speed limit, as many of the chauffeurs may have intentions of obeying the law strictly to the letter and yet be above the 8-mile limit. Those who should be arrested are the class that drive their machines at 20 or 25 miles an hour without regard for the public safety or law."

Village Limits Unmarked

John Holloway, ex-village trustee, said: "Things are being strained a bit in arresting automobilists. It would have been better to post signs warning chauffeurs, rather than jump in and make arrests of a few while others go through unmolested. Almost every automobilist knows the law, but how many know where Freeport's limits are on the east or west? I venture to say very few. They extend nearly to Millburn one way and to Merrick Bridge in another. Who would think they were in incorporated limits riding along a road with meadows on either side? The law, too, is confining. Eight miles an hour is too slow for an automobile. Twelve would be better. I have seen machines owned by local residents go along at a pretty fast clip, but they were not molested. The spirit of the arrest business is all right, but the methods employed of hiding behind telephone poles and trees is wrong."

The fines collected from motorists up to Sunday amounted to \$180, which, however, will scarcely more than cover the costs of the crusade.

The Nassau County system is extending to other places and news is received from Riverhead, L. I., that District Attorney Smith is having notices posted throughout the county offering \$50 reward for information leading to conviction of violators of the speed law.

Two motorists were fined \$25 and \$10 respectively on Saturday afternoon by Justice Howell, who held court in South Haven for the occasion. The action leading to the arrests was taken by the Brookhaven Committee of Safety.

MOTOR MAIL DELIVERY

An Indiana Postman Pays a Year's Salary for a Vehicle in Which He Covers His 32-Mile Route in Two and One-Half Hours

INDIANAPOLIS, Ind., July 19.—The postmaster general has issued special authority to Oscar Werking, mail carrier on rural route No. 2 out of Hagerstown, Ind., to use a motor vehicle in making his daily delivery of mail. According to the official document, Mr. Werking is the only rural route agent in the country who regularly uses an automobile in his work. His route is 32 miles long. He had a fine horse and started to use the animal to make the daily trips. For several weeks the horse stood up to the work in good condition, but when the winter rains made the roads heavy it was found to be all but impossible to urge the horse over the long route every day. Occasionally Mr. Werking would go over the route on his bicycle.

He continued to make the deliveries in that manner until a few weeks ago, when he determined to invest in a motor vehicle. The machine cost \$600, which is exactly the amount of money Mr. Werking receives for a year's work, but he estimates that it will cost less than a third as much to operate and maintain the automobile as it does to keep a horse and vehicle. With the former he covers the route in 2½ hours. The patrons along the route are rejoicing over the fact that they get their mail, many of them, almost six hours earlier than before, as frequently when delivering with a horse the entire day was consumed in making the trip.

The experiment has attracted much attention and other carriers are considering the matter of purchasing automobiles to use in their work. The postoffice department favors the innovation and will encourage its adoption. An official test will be made of this machine in the near future, when a report will be made to the postmaster general regarding the time required to cover the route, the expense of maintaining the machine in repair and all other questions touching the good of the service.

DOCTORS DEMAND PRIVILEGES

Arrests in Buffalo Provoke a Protest and a Suggestion that Physicians Be Permitted to Exceed Speed Limit When Answering Calls

BUFFALO, N. Y., July 21.—(Special Correspondence.)—The motorists, including several prominent physicians and business men and the proprietor of an afternoon newspaper, that were gathered in by the police a week ago on the charge of speeding their vehicles on Delaware Ave. had a hearing before Judge Murphy in Police Court last Friday morning and all of the physicians were discharged. Three of the alleged offenders—Messrs. Farnsworth, Metcalfe and Sweet—were released upon suspended sentence, the judge holding that in their cases there was no excuse for haste, while in that of the doctors there was.

In deciding the cases the judge said to the accused: "You cannot be too careful in operating these vehicles. The duty of physicians is to save lives; still when on the way to do that they should be careful of the lives of others." The judge admonished the policemen to exercise more judgment in future, for a moment lost when a doctor is responding to a call might result in life or death in many instances, he said.

The arrests brought forth a protest from the Buffalo Automobile Club, of which the offenders were members, and the police department was severely criticized in the daily newspapers for the alleged sudden activity of the department, which Dr. Lee H. Smith, president of the club, declared savored much of persecution.

A meeting of the club was called for last Friday afternoon and was largely attended by the members and individual users to talk over the situation. The chief of police was present and advised the meeting to appoint a committee to confer with the ordinance committee of the board of aldermen regarding that portion of the ordinance relating to the speed of vehicles. This was done and the committee was instructed to make an effort to have the clause modified so as to permit the doctors a trifle greater speed when responding to hurry calls.

Dr. Smith proposed a plan which he believed would aid both the doctors and the police, and eventually put a stop to indiscriminate scorching. He proposed that physicians equip themselves with flags during the day and lights to be displayed at night only when responding to hurry calls, so that they might be distinguished from others and be saved the delay and annoyance of being stopped. The proposition seemed to meet the approval of all and it is probable that an effort will be made to have such a clause incorporated in the city ordinance.

At last reports the two boys, J. R. McConnell and G. W. Garrett, who are making the trip from New York to Chicago in an Oldsmobile, were going merrily on their way and negotiating the distance in a very matter of fact manner. The boys left New York on June 28 and reached Toledo, Ohio, on July 20, after passing through Albany, Syracuse, Buffalo, Erie, Ashtabula and Cleveland. They left Toledo on the 21st, and it is expected that they would reach Chicago about the 25th or 26th, only two or three days behind their schedule. They struck muddy going east of Toledo, but with fine grit kept going and will undoubtedly establish a very creditable record for themselves and for the Oldsmobile. McConnell is fifteen years old and his companion is sixteen.

A. V. Brower and A. J. Seaton, of the Buckmobile Co., of Utica, N. Y., completed a very successful automobile trip recently in a Winton touring car. The trip was from Cleveland to Utica and was made in three days, or 36 hours actual running time. The trip was made at the

request of the Winton Motor Carriage Co., both for pleasure and business. The Buckmobile Co. is agent for the Wintons, and much valuable information regarding the roads and routes in Ohio, Northern Pennsylvania and New York was obtained by the trip of 550 miles. Messrs. Brower and Seaton report the roads in Ohio and Northern Pennsylvania very good and in New York State very bad. Incessant rains, they say, have been the cause of removing many bridges and making deep holes that are dangerous to both machine and passenger.

Max Flieschmann, Jr., who started from Cincinnati on July 11 in his Gasmobile, with the intention of making a trip to his summer home in the Catskill Mountains, reached Wheeling, W. Va., on the evening of July 16, about 24 hours behind the schedule he had prepared. He encountered bad roads and swollen streams, and at one place made a crossing which came near "flooding the engine room." The motor balked just as he came in sight of the green fields of Virginia, and he crossed the border in tow of a farmer's team. At last reports he was laid up for repairs in Wheeling.

NEWPORT NEWS NOTES

NEWPORT, R. I., July 21.—(Special Correspondence.)—After-dark automobile parties have become something of a fad among the cottagers during the past week or two, and any pleasant evening many of the large and fast touring cars can be seen on the country roads speeding to Island Park or the Tea House. A few evenings ago a party of young persons in an automobile with music repaired to a pretty spot in the country and enjoyed a little dancing before returning home.

Reginald Vanderbilt and his chauffeur left Sandy Point farm in Portsmouth intending to make a record run to Boston, such as he wanted to make a short time ago to Lenox, when his machine met with an accident in Fall River compelling him to abandon the attempt and return home. A second time the big machine got as far as Dighton when another break occurred. The machine behaved nicely as far as Dighton but refused to go further.

Col. J. J. Astor, one of the most enthusiastic motorists on this side of the Atlantic, created considerable comment and admiration a few days ago by driving his new Panhard through a heavy rain. It was not a case of being caught in a shower, but the Colonel was prepared for it and seemed to thoroughly enjoy the experience.

Lieut. Hugh L. Willoughby recently drove his gasoline tonneau from Philadelphia to Newport, averaging 15 miles per hour for the entire distance.

Alfred G. Vanderbilt has received his new Mercedes and already has given it a good test on the roads. On July 17 he ran it from Newport to Boston and return in less than three hours. The car, which

is believed to be the largest and most powerful ever seen in Newport, has proved very satisfactory. It is supposed to be capable of a speed of seventy miles an hour.

KANSAS CITY ENDURANCE RUN

P. P. Pierce Receives the Blue Ribbon for 100-Mile Non-Stop Run in an Event Promoted by the New Automobile Club

The first 100-mile endurance contest ever held west of Chicago was run on Friday, July 18, by the newly organized Automobile Club of Kansas City. The course was over the country roads of Jackson County, through Evanston and Independence, Kan. The minimum time limit was 6 hours 40 minutes and the maximum limit 12 hours and 30 minutes, or at the average rates of 15 and 8 miles per hour. The event finished in a rain storm and the conditions of the course and weather tested the vehicles and the drivers thoroughly. The start was made at 9.30 from Ninth and McGee Sts.

The only blue ribbon awarded for making the entire run without a stop was awarded to Percy P. Pierce, of Buffalo, N. Y., who drove a Pierce motorette. His time was 7 hours 30 minutes. He started at 9.45 a. m. and finished at 5.15 p. m. D. F. Piazzek, in a Haynes-Apperson, finished first, but arrived 39 minutes inside of his minimum limit and was disqualified. H. W. Loose, in a Pierce motorette, finished second, but had failed to cover the entire course. J. W. Day, driving a steam carriage, burned out his boiler and left the machine under a buggy shed at Evanston. The three other steamers completed the course.

W. T. Irwin, in a Toledo steamer, started at 9.35 and finished at 5.43; Myron Albertson started at 9.37 in a Foster steam carriage and returned to the starting point at 4.53, Frank Knutt, who left in a gasoline runabout at 9.41, returned at 5.58, and A. C. Webb, in a locomobile, got away at 10.05 and finished at 5.35. The finishing times of the later arrivals were not taken. Among them were E. P. Moriarity, C. F. Lovejoy and George Wittman, in gasoline vehicles, and W. L. Delafontaine, in a steam carriage.

MOTOR ASH CART TO BE TESTED

A self-propelled ash cart is to be given a trial by the street cleaning department of New York City within a few weeks and Commissioner Woodbury expects that it will do the work demanded in half the time now required by horse-drawn carts. If the new cart proves satisfactory and fulfills expectations, a sufficient number will be ordered to replace those now in use. Commissioner Woodbury is devoting a great deal of time to a study of the question. Three firms of automobile manufacturers are now at work on the problem of concentrating in one vehicle cheapness and serviceableness.

The new ash cart is to require the services of only one man. It is to be covered with canvas, self-rolling, on a cylinder, on the same principle as a window shade, and is to have a top opening corresponding exactly in size with new garbage cans which it is the intention of the department to have adopted by all householders in the city. The new cans will be furnished with grappling irons, which, when suspended to a transverse bar on the cart, would act as pivots on which the cans can be turned upside down. Immediately the can is emptied, the canvas top, by rolling shut automatically, will prevent the dispersion of ashes by the wind. The only obstacle at present is the cost, which as yet has not been reduced to within the limits fixed by Commissioner Woodbury.

TWO EXPENSIVE MACHINES BURNED

Two expensive vehicles, owned by Jesse Lewishon, were totally destroyed on the morning of July 17 by the burning of a one-story automobile house at Cedarlawn, near Far Rockaway, L. I., the summer home of Miss Lillian Russell. The machines were a large Mercedes and a smaller Panhard, and together are estimated to have cost their owner \$26,000. The fire was caused by the dropping of a lighted match by an attendant, who was cleaning one of the machines. The ruined Panhard was the machine in which Miss Russell, Mr. Lewishon and one or two friends were stopped at Freeport, L. I., on July 13 for exceeding the speed limit, for which the chauffeur later paid a fine of \$15. There was no insurance on either the building or the machines. The burned machines were replaced on Saturday by two new ones of similar make by Jesse Lewishon.

MEDDLESOME BOYS CAUSE TROUBLE

A gasoline vehicle, owned by Dr. Bernard Frankel, 74 Rivington St., New York, dashed unguided through Rivington St. last Thursday evening. The doctor had driven up to his home and left the carriage in charge of the chauffeur, who crept beneath the vehicle to examine some part of the gearing. A crowd of small boys immediately flocked about the vehicle and one of them, prompted by a spirit of mischief, pressed the lever down and the machine started at full speed. It caromed from curb to curb, and by the time it was stopped by the chauffeur, three blocks from the starting point, it had upset pushcarts, scattering vegetables, fruit and dry-goods in all directions, and had left six small boys lying stunned in its path. The oldest of the injured lads was ten years of age and the youngest five. Cuts and bruises constituted their injuries, which were soon patched up by the doctors of the neighborhood. The chauffeur was not hurt and the automobile escaped damage.

except that its dashboard and sides were scraped and dented.

ASCENT OF GREYLOCK MOUNTAINS

On July 15 two New England motorists made a successful attempt to ascend Greylock Mountain, near North Adams, Mass. This mountain is the highest in New England, and is a steady climb of seven miles. The road is extremely rough and tortuous at present, full of deep ruts and in some places quite muddy and of varying degrees of grade, up to 14 per cent. or more. The party consisted of F. G. Jager, who had with him his Locosurrey, a photographer and a newspaper reporter, and J. C. Anthony, who carried a friend along with him in his special Locomobile victoria. The ascent was made without difficulty and in good time. The top of the mountain is 3,500 feet above the level of the sea, and this was the first successful attempt to reach the top in an automobile.

CANNOT USE CAB STANDS

WASHINGTON, D. C., July 19.—(Special Correspondence.)—The corporation counsel has returned to the District Commissioners a communication from the hack inspector in reference to the decision of the Court of Appeals in the case of the District against the Washington Electric Vehicle Transportation Co., together with a statement of the mayor of police. The corporation counsel states that the effect of the decision in the case is to place all automobiles and other horseless vehicles in use in Washington in the class of private vehicles. They are therefore not entitled to use the public stands and remain in front of public buildings when not engaged, a privilege desired by the local automobile company.

A PROPOSED PROTECTIVE LEAGUE

Motorists have under way a movement to form a protective league, similar to the L. A. W. and the new Motor Union recently started in England. The league is to have headquarters in New York, and will aim to include all automobilists. There are to be consuls at all important points in the country, and it will be the aim to protect the interests of every member who may be arrested for alleged violations of the law. He will be furnished immediately with a lawyer and, if necessary, with bail. The league will aim to promote the cause of automobilism generally, and will work for the improvement of the highways. Finally, it will endeavor to secure special road rights for automobilists.

The motor bicycle race scheduled to take place on the Speedway at Atlantic City during the League of American Wheelmen annual meet, was called off owing to the passage of an ordinance limiting the speed of motor vehicles and motor cycles to 6 miles within the city limits.

HIGH DUTY STEEL BALLS



ACCURATE
TO 1-10000
OF AN INCH

EXACTLY
SUITED FOR
AUTOMOBILES

WE MAKE OVER 500,000 BALLS EACH DAY

AUTOMOBILE AND CYCLE PARTS COMPANY
BALL AND PEDAL FACTORY
Cleveland Ohio

Prosecutor E. L. Taylor, of Franklin County, O., has rendered an opinion to the effect that the statutes give the county commissioners no authority to fix the maximum speed at which motor vehicles may be driven over the roads of the county. In other words, they cannot in any way regulate the speed. The decision is of much interest to automobile operators throughout the state.

Index to Advertisers

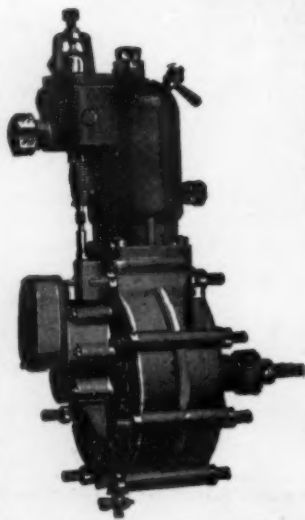
Adams Co., The.....	31
American Coil Co.....	29
American Darracq Automobile Co.....	37
American Machine Mfg. Co.....	29
American Roller Bearing Co.....	32
American Tubular Wheel Co.....	32
Audel & Co., Theo.....	24
Automobile & Marine Power Co.....	34
Automobile & Cycle Parts Co.....	23
Automobile Co. of America.....	36
Axiom Carburetor Mfg. Co.....	30
Back Bay Hydro-Carbon Repair Co.....	34
Baker Motor Vehicle Co.....	26
Balkwill Pattern Works.....	31
Barnes Co., Wallace.....	29
Beasley & Co., Chas. H.....	27
Bowser & Co., Inc., S. F.....	28
Bowen Mfg. Co.....	25
Bray Mfg. Co.....	26
Buffalo Automobile & Auto-Bi Co.....	34
Carlisle & Finch Co.....	30
Carter, B. J.....	28
Century Motor Vehicle Co.....	28
Chicago Motor Vehicle Co.....	36
Chisholm & Moore Mfg. Co.....	25
Cincinnati Panel Co.....	25
Clark Tire Co.....	22
Cleveland Faucet Co.....	31
Cleveland Wire Spring Co.....	29
Coburn, A. J. & Co.....	24
Columbia Lubricants Co.....	28
Columbus Automobile Exchange.....	24
Conrad Motor Carriage Co.....	33
Dayton Elec. Mfg. Co.....	29
Detroit Carriage Mfg. Co.....	25
Diamond Rubber Co.....	40
Dietz Co., R. E.....	32
Dixon Crucible Co., Jos.....	28
Dunbar Brothers.....	29
Du Bois Automobile Agency.....	24
Eastman Metallic Body Co.....	26
Electric Vehicle Co.....	37
Eldredge Electric Mfg. Co.....	23
Elmore Mfg. Co.....	34
Elwell-Parker Electric Co.....	32

Erie Foundry Co.....	34
Essex Brass Co., G. B.....	28
Forg, Peter.....	27
Fournier-Searchmont Automobile Co.....	34
Friedman Automobile Co.....	35
Funke, A. H.....	24
Garden City Spring Works.....	29
G & J Tire Co.....	32
Gould, G. T.....	24
Gould Storage Battery Co.....	30
Grant-Ferris Co.....	33
Grout Bros. Co.....	24
Harris Safety Co.....	35
Haynes-Apperson Co.....	37
Helios-Upton Co.....	29
Henricks Novelty Co.....	29
Hottelling Bros. Co.....	36
Hoffman Motor Co.....	33
International Air Pump Co.....	31
International Motor Car Co.....	39
Jarvis Machine & Engine Works.....	31
Janney, Steinmetz & Co.....	27
Kelly Handle Bar Co.....	27
Konigslow, Otto.....	32
Knowles, C. S.....	29
Lincoln Electric Co.....	33
Lobee Pump Co.....	31
Locke Regulator Co.....	31
McRae, H. C.....	29
Mason Regulator Co.....	24
Miller-Knoblock Electric Mfg. Co.....	29
Miller, Chas. E.....	25
Mosler, Arthur R.....	30
Motor Cycle Mfg. Co.....	36
Motor Vehicle Power Co.....	33
Munger Automobile Tire Co.....	32
Niagara Motor Vehicle Co.....	36
Noye Mfg. Co.....	35
Nungesser Electric Battery Co.....	30
Nuestadt-Perry Co.....	31
Ohio Automobile Co.....	34
Olds Motor Works.....	39
Overman Automobile Co.....	31
Pittsburg Reduction Co.....	25
Randolph-Cloves Co.....	26
Rasche Mfg. Co., H.....	30
Reason Automatic Air Pump Co.....	31
Reliance Gauge Column Co.....	31
Rutenber Mfg. Co.....	33
Salmadrine Boiler Co.....	27
Shelby Steel Tube Co.....	26
Smelser Engine Co.....	32
Special Notices.....	24
Spittdorf, C. F.....	30
Standard Oil Co.....	28
Standard Welding Co.....	26
Stearns & Co., F. B.....	23
Studebaker Bros. Mfg. Co.....	35
Tonkin Boiler Co.....	26
Towle, Herbert L.....	24
Turner Brass Works.....	27
Upton Machine Co.....	32
Waterbury Farrel Foundry Co.....	25
Watkins Mfg. Co., Frank M.....	33
White Sewing Machine Co.....	36
Wilson Carriage Co., C. R.....	25
Winton Motor Carriage Co.....	36
Wolverine Motor Works.....	33

Kelecom Motors

(IMPORTED)

HYDROCARBON WATER-COOLED



PERFECT record in Long Island Automobile Club's Endurance Run. A 5 h.-p. Kelecom Motor, fitted in a carriage weighing 822 pounds, carrying two passengers, went through without a single stop ahead of its class, and as per official measurement used only 3 1/2 gallons of gasoline.

SINGLE CYLINDER
Five and Seven Horse-Power

DOUBLE CYLINDER
Nine and Eleven Horse-Power

Kelecom Bicycle Motors

1 1/4 h.-p. Air Cooled
Weight 33 lbs.

We Manufacture Special Acetylene Headlights for Automobiles
Send for Latest Catalogue No. 3—Just Out

A. H. FUNKE, 98 Duane St., New York

Going to the Country?

Have the AUTOMOBILE AND MOTOR REVIEW sent where you will spend your vacation this summer. You will find it an interesting companion. If you have a friend interested in Automobiles, send his or her name for a sample copy.

ADDRESS

Circulation Department

The Automobile & Motor Review
395 BROADWAY, NEW YORK

Special Notices

Advertisements of second hand vehicles or parts for sale, or for Positions Wanted, inserted under this heading at 10c per line. Remittance must accompany copy.

FOR SALE—Gasoline Runabout, 3 h.-p., weight 550, perfect condition, price \$425. Box 1604, Bradford, Pa. 26

FOR SALE—Steam carriage—6 h.-p. engine, 20-inch boiler, 600 tubes, steam, water and air pump, double seat; all new and perfect; price \$800.00. Write for photo and particulars. Address Wm. Hight, Newport, Vt. 19?

FOR SALE—One Style "A" Geneva Steam Runabout. Has run 1,100 miles; perfect in every respect; fitted with all the late attachments; cost \$800; will take \$485 cash, or trade for Winton or Haynes-Apperson tonneau. Write for full description. Robert Holmes, Danville, Ill. 2

FOR SALE—New automobile gear and tonneau body, suitable for either steam or gasoline engines; arranged to mount engine in front if desired; can use 8 to 20 h.-p.; or will sell separate at low price. Box 25, care Class Journal Co., 395 Broadway, New York. 26

SITUATION WANTED by first-class mechanic. Long experience on steam and gasoline automobiles. Best of reference furnished. Address Wm. Hight, Newport, Vermont. 26

Back Bay Hydro-Carbon Repair Co.

Entrances on Clarendon and Stanhope Sts.
BOSTON, MASS.

GASOLINE CAR REPAIRING A SPECIALTY
ALL WORK DONE BY EXPERTS
First Class Storage Station. Phone 251-9 Tremont.

A. J. COBURN & CO.
Automobiles & Motor Cycles
Sole Agents for
Orient, Elmore, Crestmobile
Headquarters for Famous
French Darracq Cars
147-153 COLUMBUS AVE., Columbus Automobile Exchange
BOSTON, MASS.

Columbus Automobile Exchange
147-153 Columbus Ave. **BOSTON**

NEW ENGLAND AGENTS FOR
Steam and Gasoline AUTOMOBILES
Storage by day or month. Station always open. Best equipped repair shop in New England. Automobile Supplies of all kinds. New and slightly used Automobiles for sale. Phone 388-2 Tremont

U. S. Long Distance Car

BOSTON AGENCY
G. T. GOULD, Jr., 43-45 Columbus Ave.

HERBERT L. TOWLE
Automobile and Gas Engine Designer
Gasoline Speed Launches
Mechanical and Patent Office Drawings
116 NASSAU ST. **NEW YORK**
Telephone 590 John

DO YOU RUN AN AUTO?

Do You Want to Understand Its Workings?
"Self-Propelled Vehicles" the new book by J. E. Homans, A.M., tells the whole story. It explains in simple, non-technical language the mechanism and management of every type of automobile. 640 pages; 600 illustrations; complete diagrams; ready reference index; a great trouble-saver. Write for booklet showing sample pages, free on request.
THEO. AUDEL & CO., Publishers, 63 Fifth Ave., New York

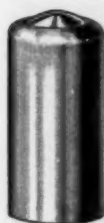
YOU CAN'T AFFORD TO FOOL time and money away trying to get gas engine cylinder castings in any foundry. We have made a specialty of this work for ten years. We know we can make yours. **ERIE FOUNDRY CO., Erie, Pa.**

WE CAN SELL YOUR AUTO

whether a \$15,000 Panhard or a motor cycle made with your own hands. We have customers for any and all kinds. Oldest established general Automobile Agency in the United States.

REFERENCE: The Publishers of this Paper
DU BOIS' AUTOMOBILE AGENCY, 220 Broadway, New York

WHEN ANSWERING ADVERTISEMENTS, PLEASE MENTION THE AUTOMOBILE AND MOTOR REVIEW.



WHAT LENGTH DO YOU WANT?

We make them
all sizes for all
requirements



SEND FOR CIRCULAR

Bowen Mfg. Co.

15 Canal St.

AUBURN, N. Y.

*Detroit Mfg
Carriage Co.*
DETROIT, MICH.

Expert Makers
Auto Bodies,
Tops, Cushions,
Backs Etc.



C. R. Wilson Carriage Co.,
Detroit, Mich.

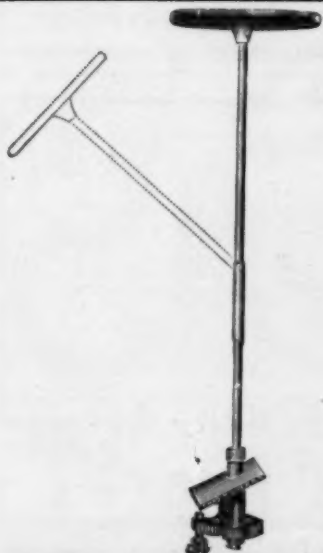
This cut shows the tail-board down,
creating room for two additional pas-
sengers. When closed up it makes
an ideal one-seated vehicle.

1902 PATTERN

MADE BY THE



CINCINNATI PANEL CO.,
CINCINNATI, OHIO.



Miller's Wheel Steering Device

Spur gear, can be attached to any machine with flat bottom body

Price of device, including laminated
wood steering wheel, with nickel plated
spokes, steering rod connection, bear-
ing, quadrant, and spur gears com-
plete, as shown in cut

Price, \$15.00

Discount to manufacturers and large
buyers.

The Largest Automobile Supply House in America

Everything for building and repairing
automobiles. Catalog mailed on request

CHARLES E. MILLER

Manufacturer, Jobber, Importer and Exporter

97-99-101 Reade St., New York City

THE WATERBURY
FARREL FOUNDRY
and MACHINE CO.

WATERBURY,
CONNECTICUT,
U. S. A.

DESIGNERS AND BUILDERS OF

Sheet Metal Working and Special
Machinery Described in Catalogs.

A = Automatic Rivet Machines.
B = Hinge and Butt Machines.
C = Cartridge Machines.
E = Drop Screw and Foot Presses.
G = Tube and Rod Drawing Machinery.
H = Hydraulic Machinery.
L = Spinning Lathes, Edging Lathes, etc.
N = Open Back, Single Acting Power Presses.
P = Pillar Single Acting Power Presses.
R = Double Acting Power Presses.
S = Rolling Mills.
T = Shears and Slitters.
F = Furnaces, etc.

ALUMINUM

THE PITTSBURGH REDUCTION CO.

PITTSBURGH, PA.

Aluminum Automobile Parts a Specialty

HARRIS SAFETY "AUTO" FIRE EXTINGUISHER

SPECIALLY BUILT
BEAUTIFULLY NICKELLED

18 INCHES HIGH
2 1/2 INCHES DIAMETER

THROWS STREAM 30 FEET

SAVES YOUR MACHINE
SAVES YOU INJURIES

THE ONLY EXTINGUISHER
FOR AUTOMOBILES

ENDORSED BY LEADING
CHAFFEURS

CATALOGUE FREE

HARRIS SAFETY CO.

St. James Building, New York
Telephone, 513 Madison

AUTO- FIRE EXTINGUISHER



LIGHT AND MEDIUM WEIGHT MALLEABLE IRON CASTINGS

TO ORDER.

PROMPT SERVICE, SMOOTH AND
WELL ANNEALED CASTINGS.

THE
CHISHOLM & MOORE MFG CO
CLEVELAND, OHIO.

Incontestably The BEST



ARTICLE OF ITS
KIND EVER
OFFERED
TO THE
TRADE

SAMPLE FREE
UPON APPLI-
CATION

The HOTELLING BROS. Co.

268 E. 35th St., CHICAGO, ILL.

TONKIN Dry Plate Boilers & Kerosene Burners
FOR AUTOMOBILES.

Tonkin
Boiler
Co.,

Oswego,
N. Y.



Metal FENDERS Hoods & Bonnets

Are Right in Our Line
Our GOODS ARE RIGHT
So are our prices
Write us

EASTMAN METALLIC BODY CO.
184 KINSMAN ST. :: CLEVELAND, OHIO

THE CONSTRUCTION OF A GASOLINE MOTOR VEHICLE

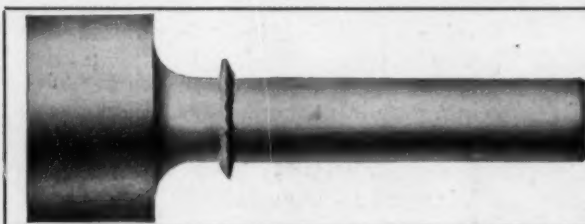
By C. C. BRAMWELL

THE NEWEST AND
MOST COMPLETE
BOOK RELATING TO
GASOLINE VEHICLES

\$2.00

AUTOMOBILE and
MOTOR REVIEW

395 BROADWAY NEW YORK



Note how ap-
plicable the Elec-
tric Welding
Method is for
automobile con-
struction :: ::

THE STANDARD WELDING CO.

CLEVELAND, OHIO

Randolph-Clowes Co.

WATERBURY, CONN.

Brass and Copper Rolling Mills
AND

Seamless Tube Works

Seamless Copper Shells

FOR

AIR, GASOLINE AND
MUFFLER TANKS

Copper Tubes and Shells

FOR

AUTOMOBILE BOILERS

BRANCH OFFICE

NEW YORK CHICAGO
715 Postal Tel. Bldg. 602 Fisher Bldg.

SHELBY

SEAMLESS

STEEL TUBING

in your automobile
means a *successful* and
satisfactory product.

You cannot afford to
take chances with *un-
tried* material.

Send us your specifications

Shelby Steel Tube Co.
PITTSBURG, PA.

SAVE YOUR TIRES

and You Save Money



Use
"B. B."
Adjustable
JACKS

whenever you have
your Auto standing
for more than one
day. The depres-
sion of your tires in
one spot will get them

out of shape and finally ruin them.

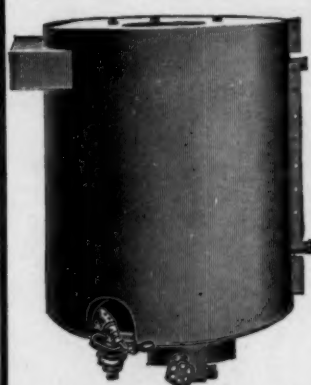
STRONG, LIGHT, ADJUSTABLE

INSIST on having "B. B." Jacks when
you buy them of your dealer or when
furnished by your manufacturer. ..

BRAY MFG. CO.

Sole Makers

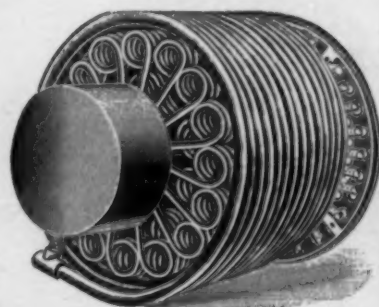
SUITE 57 115 BROADWAY New York, Works Newark, N.J.



The ACME of PERFECTION SALAMANDRINE Never=Burn=Out=Boiler

Imparts Dry Steam Under All Conditions.
Will Run Your Carriage the Last Mile as Fast as the First.

Salamandrine Boiler Co. 220 Broadway, New York
WORKS: NEWARK, N.J., U.S.A.



"The Automobile and Motor Review"
Subscription, \$2 a Year 395 Broadway, New York

HELMET OIL
ONCE A YEAR
THAT'S ALL
WHEN YOU USE
HELMET OIL
CHARLES H. BESLY & CO.
12 N. CANAL ST. CHICAGO ILL. U.S.A.



Automobile and Marine
**Boiler Shells & Pressure
Tanks**
SEAMLESS COLD DRAWN
SMOOTH STEEL
All diameters and any length
Write for New Illustrated Price List

JANNEY, STEINMETZ & CO. 828 DREXEL BLDG. PHILADELPHIA

Automobile GASOLINE GENERATOR



The Turner Gasoline Pocket Torch generates so easily it only requires the heat of one match to generate and light it. Price \$2.00 each.

The TURNER BRASS WORKS
62 No. Franklin St., Chicago, Ill.



The Forg Gasoline Burners



3 Compartment Burner with Generator and Regulator

ARE THE
Best Constructed, give
a Blue Flame and
More Heat than any
other burner manu-
factured. Write for Descriptive
Catalogue

Peter Forg
Somerville, Mass.



Generator and Regulator for
3 Compartment Burner



THE KELLY GENERATOR

STANDS UNSURPASSED

A Continuous Generator and Pilot Light. Quickly
Lighted. No Flare. No Smoke. Clean, Powerful,
Simple and Durable. *Main Fire Operated from Seat.*
Protected against wind. We would caution against the
so-called pilot lights. The Kelly is the *Only Reliable* and
Perfect Combined Generator and Pilot Light Made.

THE KELLY HANDLE BAR CO., Cleveland, Ohio



Lubricators, Oilers, Grease Cups, &c.

FOR GASOLINE ENGINES

WRITE US FOR PARTICULARS

The G. B. Essex Brass Co.
DETROIT, MICH.

Monogram Oils & Greases

Specially adapted for Automobile Lubrication
Write for catalog and price list

Columbia Lubricants Co. 22 Burling Slip
NEW YORK

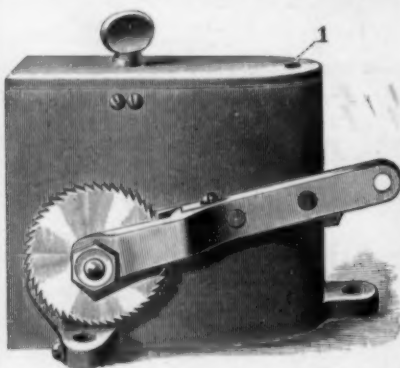
DIXON'S GRAPHITES

For Steam, Gas or Electric
Automobiles

Are Accorded the Highest Testimonials.
Send for Free Samples and Pamphlet.

JOSEPH DIXON CRUCIBLE CO.
JERSEY CITY, N. J.

THE CARTER AUTOMATIC CYLINDER LUBRICATOR



Requires no Attention or Regulating.
Supplies a uniform amount of oil at all
times. Easily attached. PRICE, Quart Size,

\$10.00

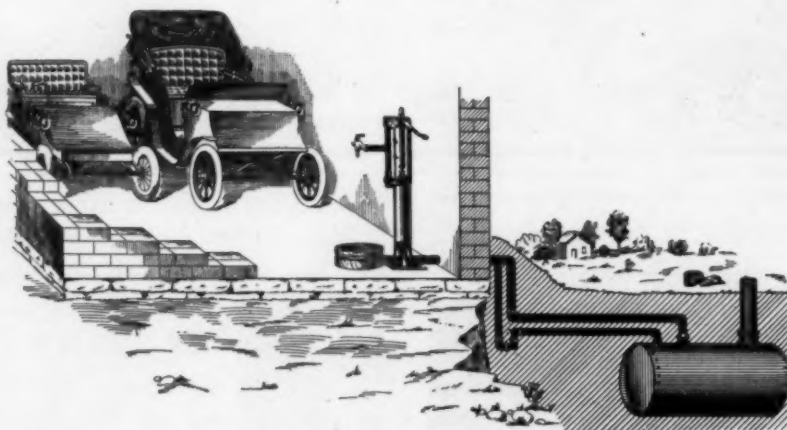
B. J. CARTER
Jackson, Mich.

Take No Risks With Gasoline

BUT USE A

Bowser Long Distance Gasoline Storage Outfit

Meets all requirements of Insurance
Companies and Fire Boards.
Only One Gallon of Gasoline in build-
ing, and that inside pump.
Tank of Heavy Steel, Riveted and
Soldered.



TANK BURIED—PUMP IN CARRIAGE HOUSE

Pump All of Metal. Measures Gallons, Half Gallons or Quarts

ASK FOR CATALOGUE "J"

S. F. BOWSER & CO., Fort Wayne, Ind.

STANDARD OIL CO. STOVE GASOLINE

STOVE Gasoline made by the Standard Oil
Co. is *especially* adapted for use in automo-
biles, locomobiles, naphtha launches, marine and
stationary engines.

For *safety*, *speed* and *economy* specially treated
naphtha is necessary for machinery above
mentioned.

Our Stove Gasoline has peculiar advantages
for these uses, due to improved methods of
manufacture, and can be obtained from dealers
in any town or city in the United States.

For full information address **STANDARD OIL CO.**

SMALL SPRINGS
OF ALL DESCRIPTIONS
ALSO THOSE USED BY MOTOR VEHICLE MANUFACTURERS
DUNBAR BROTHERS
ESTABLISHED IN 1845 BRISTOL CONN.

FOLDING RUBBER AUTO BUCKET

A NECESSITY
ON ALL
STEAMERS.

Special price
for next 60
days on Best
Auto Bucket
made.

C. S. KNOWLES, 7 Arch St., BOSTON

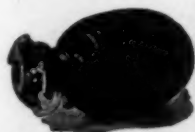
**"Champion Accumulator"**

An Ignition Battery Specially
Adapted to Either

AUTOMOBILES

MOTOR CYCLES or
MARINE ENGINES

H. C. MacRAE, Baltimore, Md.

THE APPLE IGNITER

Dynamo with door closed

YOUR Automobile is not complete without it.
They are well built and nicely finished. Entirely enclosed, making them dirt and water proof with means for easy access as shown by cuts.

Write for circulars

THE DAYTON ELECTRICAL MFG. CO.

165 ST. CLAIR ST., DAYTON, O.
Philadelphia Office, The Bourse, Chicago Office, 19-21 La Salle St. New York Stock carried by Chas. E. Miller, 97 Reade St. St. Louis Stock carried by A. L. Dyke, 1802 Pine St.



Dynamo with door open

If Your Springs Are Giving You Trouble, Write Us

We are making a Specialty of a Strictly High Grade Spring for Automobiles. They are tempered in oil, and for easy riding and durability cannot be surpassed

GARDEN CITY SPRING WORKS
CHICAGO, ILL., U.S.A.

SPRINGS
ALL SMALL SPRINGS USED BY
MOTOR VEHICLE MANUFACTURERS
THE WALLACE BARNES CO.
BRISTOL, CONN.

CATALOGUE B UPON APPLICATION

SUBMIT SAMPLES FOR PRICES

WE DEFY THE WORLD TO PRODUCE ITS EQUAL

SEE THAT TAPER

NOTE Wonderful Construction of Our Plug. Taper Steel Electrode Insulated with Pure Sheet Mica. No Shellac or Adhesive. Nothing to Break or Become Loose. Pure Platinum Points.



Sent to any part of the world, prepaid, on receipt of price,

\$2.25

Discount on Quantities
Guaranteed for 90 Days
All Standard Threads

American Machine Mfg. Co.

46 W. 2d St. SO. BOSTON, MASS.

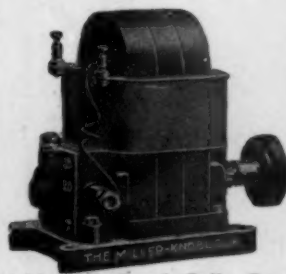
We Lead the World

In the manufacture of Jump Spark Ignition Apparatus. Our catalog will convince you of this fact. Write for it.

American Coil Co.

BOX 20

W. SOMERVILLE, MASS.



with Jump Spark Coils. Send for Catalogue.

The Miller-Knoblock Electric Mfg. Co.

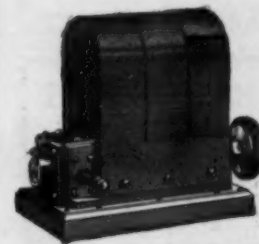
SOUTH BEND, INDIANA

"Quick Action"

Igniting Dynamos Excel all others.

No spark coils; no batteries needed on Butt Spark Engines

It will operate

THE NEW Henricks Igniter

IS SUPERIOR TO ALL OTHERS.

Especially adapted to Marine and Automobile Engines

Successfully works Jump Spark Coil

BOOKLET FREE

Henricks Novelty Co. 617-619 So. Illinois St. INDIANAPOLIS, IND.

H-U. 50m Accumulators.

Non-Infringing

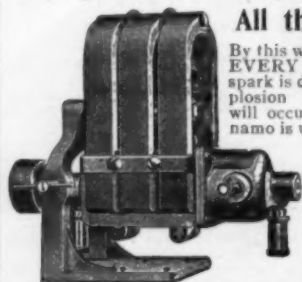
Light Weight

Long Mileage

Durability

HELIOS-UPTON CO. CHICAGO, ILL.

A Spark Every Time



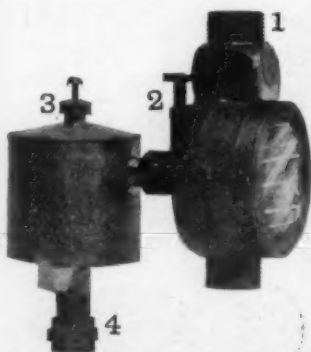
All the Time

By this we mean that EVERY TIME a spark is due in the explosion chamber, it will occur if this Dynamo is used.

"A lot depends on the Dynamo."

We have interesting booklets

THE CARLISLE & FINCH CO.
223 E. Clinton Ave., Cincinnati, Ohio



Axiom

Carburettors are unaffected by changes in temperature.

They are, besides,

Automatic
and Positive
in Action
Economical
Simple
Compact
Reliable

"No Hidden Theories"

—WRITE—

THE AXIOM CARBURETTOR MFG. CO.,
106 E. 28th St., New York.

A Carburettor and Muffler Combined

OUR newly constructed combination carburettor and muffler produces a sufficient quantity of gas to meet all requirements, and does it by the use of **any grade** of gasoline. Positively no waste takes place and there is a total absence of that offensive odor so common with the carburettors now in use. This carburettor can be easily regulated to produce from the strongest to the weakest explosion the operator may require. Investigate the merits of this new invention, and you will forthwith become its greatest admirer and user. Manufactured and fully guaranteed by the

H. RASCHE MANUFACTURING CO.
499 Broadway, Milwaukee, Wis.



**Splitdorf
Coils**
That's all.
They tell the
rest.
C.F. Splitdorf
17
Vanderwater St.
NEW YORK

WONDERFUL RESULTS
...WITH...

Mosler Spit Fire SPARK PLUG.



Protected Porcelain and Sparking Point.

**SIMPLE, RELIABLE,
INDESTRUCTABLE.**

Special Nickel Rod with Screw adjustment for accurate setting between sparking points—avoids bending and breaking of platinum points.

Reversible Porcelain—Double Life
\$2.50 Complete.

Any Standard French or American Thread.

Special Discounts quoted to
Manufacturers and Jobbers.

ARTHUR R. MOSLER,
SOLE MANUFACTURER,
309 Broadway, New York.

GOULD Storage Battery

FOR AUTOMOBILES



OVER
25,000
CELLS IN
SERVICE

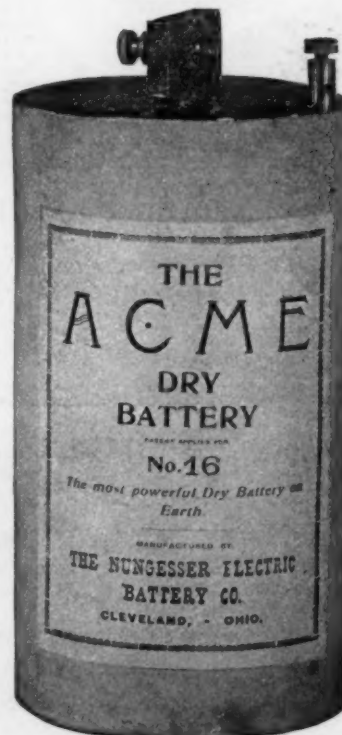
◆◆◆
GREATEST
MILEAGE
COMBINED
WITH
LONGEST
LIFE

GOULD STORAGE BATTERY CO.

25 West 33d Street, - NEW YORK CITY

The No. 16 ACME DRY BATTERY

THE MOST POWERFUL BATTERY
ON EARTH FOR AUTOMOBILE SERVICE



Size 3 3/4 in. Diameter x 8 in. High

For strength, durability and recuperation the No. 16 has never been equalled. If you give this battery a trial you will use no other in the future.

THE NUNGESSER Improved Spark Coil

FOR IGNITING HIGH SPEED
GASOLINE ENGINES ON AUTOMOBILES,
PLEASURE YACHTS, ETC.



Length of Coil 6 in. Diameter 2 3/4 in.

The most perfect and reliable ignition on High Speed Engines with the least possible consumption of current.

Manufactured by

**The Nungesser
Electric Battery Co.**

27-33 KING ST.
CLEVELAND, OHIO, U.S.A.

THOS. G. GRIER, Western Representative
128 W. Jackson Bl'vd, Chicago, Ill.



HERE IT IS The CHEAPEST Reliable SAFETY WATER COLUMN

That Has Ever Been Brought Out

OUR "Auto-Pet"

SPECIFICATIONS:

Diameter of Column . 2 1/2 in.
Diameter of Top Flange 3 1/2 in.
Height over all . . . 13 in.
Height of Column . . . 8 in.
Size of Pipe Connections 1/2 in.
Weight complete . . . 6 1/2 lbs.

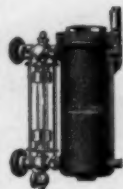
Everything except the Cover Screws is made of Best Steam Brass.

WE GUARANTEE the parts in the "Auto-Pet" that correspond to the floats in other Alarms for five years under any PRESSURE.

THEY CANNOT FAIL

SMALL, SIMPLE, DURABLE
RELIABLE, POSITIVE

JARVIS ENGINE AND MACHINE WORKS
Lansing, Mich.



Save Your Nerves

BY APPLYING A
Reliance Low Water Alarm
TO YOUR STEAM VEHICLE
SEND FOR ILLUSTRATED CIRCULAR
Reliance Gauge Column Co.
CLEVELAND, OHIO

KLINGER GAUGES

The only gauge glass made for automobile use which does not explode. No lamp and no extra glasses needed. We have a large supply of these gauges in stock.

Locke Regulator Co.
Salem, Mass., U.S.A.
Send for Catalogue "C"



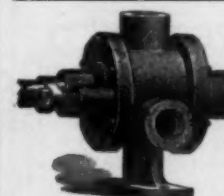
SUBSCRIBE

The **Autobile and Motor Review** will enable you to intelligently discuss all automobile topics.

The "International" Air Pump

formerly the "Detroit" Air Pump, has been adopted by the "Mobile" Company of America as regular equipment to "Mobiles." For further information address

The "International" Air Pump Company
180 Times Building, New York City



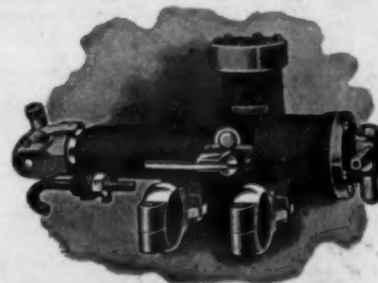
Is Your Circulation Good?

THE LOBEE PUMP

Increases and gives a positive circulation to the cooling water for all Gasoline Motors. Simple, Cheap, Durable, Efficient, easy to apply. Sent on trial to responsible parties.

LOBEE PUMP & MACHINERY CO.
129-144 Terrace, Buffalo, N. Y.

Reason Automatic Air Pump FOR STEAM VEHICLES



Keeps the air pressure in the fuel tank whenever desired automatically, without care or attention. We also make the REASON J.B. AIR PUMP "Non-Automatic," which is controlled from the seat of the wagon. Write for circulars and description. Eastern Agents: Chas. E. Miller, 97 Reade St., New York. Spalding Bedwell, 29 W. 42d St., New York. Post & Lester, Hartford, Conn.

Patented
January
29, 1901



GRADOMETER

A SIMPLE INSTRUMENT that will enable you to tell the grade per cent. you are ascending or descending :: :: SENT ON RECEIPT OF \$1.50

THE ADAMS COMPANY :: :: DUBUQUE, IOWA, U.S.A.
OUR AXLES ARE THE TALK OF THE TRADE.



NEUSTADT - PERRY CO.

along which shows a complete line of engines, boilers, gears, transmission wheels and everything to build complete outfits, along with a full line of gasoline and steam accessories. Send us your address and we will mail you one.
NEUSTADT-PERRY CO., 826 to 830 S. 18th St., St. Louis, U. S. A.

There Is So Little Difference

in cost between good and cheap patterns, that we wonder at the short-sightedness in ordering anything short of the best. We make the best only—it is cheaper for the manufacturer in the end.

Let us make you a sample.

Balkwill Pattern Works

970 Hamilton St.
CLEVELAND, OHIO

The VICTOR Steam Pump



Size, 9 inches by 3 inches.
Weight, 4 1/2 pounds.
Capacity of Air Pump, 80 pounds pressure on tanks or tires.
Capacity of Water Pump, 3 gallons per minute against 200 pounds boiler pressure.

PRICE \$30.00 EACH

These pumps have been adopted by the Locomobile Co., the Mobile Co., and other leading manufacturers of steam carriages.

THE VICTOR STEAM CARRIAGE

Reliable Automatic Features
Write for full technical description

Overman Automobile Co.
7 East 42d Street, NEW YORK

Champion Auto PUMP



STRONGEST AUTO PUMP MADE

Compact, Adjustable, Simple.
Made of the very best heavy gauge seamless brass tubing.

No dust can get at the valves or packing.

Not a cheap pump, but the CHEAPEST to buy because it will last a lifetime. Simply nothing to get out of order.

Write for prices and discount.

Open Closed

The Cleveland
Faucet Co.

15-27 Frankfort St.
Cleveland, O.

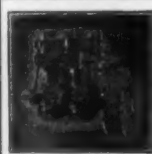
27 INCHES HIGH

DIETZ KEROSENE AUTOMOBILE LAMP

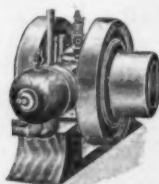
Embodies the experience gained in 60 years' of Lamp building. Send for particulars

R. E. DIETZ COMPANY 33 LAIGHT ST.
NEW YORK

IT WILL PAY YOU TO SOLICIT subscriptions for the AUTOMOBILE AND MOTOR REVIEW. For full information address The Class Journal Co., 395 Broadway, New York



NOYE MFG. CO.
BUFFALO, N. Y.
Gasoline Motors
Single—Double—Triple
2 to 20 HORSE-POWER
On Hand for Immediate Shipment



The SMELSER
Gas & Gasoline Engines
Simple, Reliable, Powerful
and Easily Operated.
For Automobiles, Launches
and Stationary Use.
3 to 15 h.p. Send for catalogue
The Smelser Engine Co.
FRANKTON, IND.

The Tires

on an automobile either increase or retard its speed. Resilient tires give additional power and greater mileage.



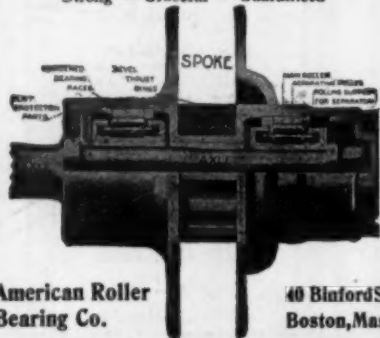
G & J Detachable Tires

have been proven the speediest of all vehicle tires, and they wear longest. Descriptive Catalog and full information on request.

G & J TIRE CO.
Indianapolis, U. S. A.

ARB Artillery Hubs

Strong — Graceful — Guaranteed



American Roller
Bearing Co.

40 Binford St.
Boston, Mass



AUTO STEERING WHEELS

Sheet Metal-plated or Enameled Webb.
Assembled in Laminated Wood Rims.

LIGHT - STRONG - PRICES RIGHT

Otto Konigslow CLEVELAND
OHIO, U.S.A.

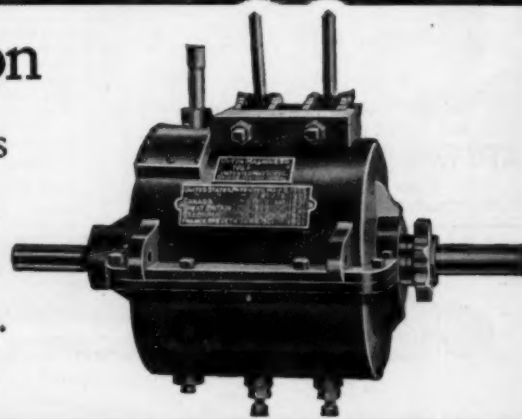
K. Franklin Peterson, Sales Agt., 165 Lake St., Chicago



Transmission Gear FOR AUTOMOBILES

Two Speeds Forward and Reverse
Satisfaction Guaranteed

Upton Machine Co.
(Works at
Beverly, Mass.)
17 State St., New York



WHEELS

TUBULAR STEEL WHEELS

Strong
Neat
Durable

Write for our NEW CATALOG

**AMERICAN TUBULAR
WHEEL CO.** Pittsburg, Pa.

SUCCESS

in the use of tires on power driven vehicles is attained only when the tires are constructed to meet every one of the many requirements. They are all embodied in



MUNGER
NON-COLLAPSIBLE
PNEUMATIC TIRES
MUNGER AUTOMOBILE TIRE CO.,
TRENTON, N. J.

MASON

IS THE NAME OF THE BEST

AUTO ENGINES AND APPLIANCES

SEND FOR FREE ILLUSTRATED CATALOG
MENTIONING THIS JOURNAL

THE MASON REGULATOR CO
158 Summer St., BOSTON

Simplicity Durability Finest Workmanship

These are the Points of Excellence
found in the

"Watkins" Marine Gas Engine

If interested send for
Catalogue and prices

The Frank M. Watkins Mfg. Co.
539 BAYMILLER ST.
CINCINNATI, OHIO

THE CONRAD STEAMER

Made Pittsburg to Johnstown, 81
miles over the mountains, 7 hours
45 minutes. No accident of any kind.

THE CONRAD MOTOR CARRIAGE CO.

1413 Niagara Street Buffalo, N. Y.

Send for catalogue.

STEARNS

Gasoline Automobiles

Euclid & Lake View Aves. CLEVELAND, O.



H. L. Hoffman Motor Co. JOLIET, ILL.

Manufacturers of Single 4 h.p.,
Double 7 h.p., Double Cylinder
16 h.p. Gasoline, Automobile
or Marine, 4 Cycle Motors.
Either Horizontal or Vertical.
Fully guaranteed. Prices the
lowest. Your patronage is
solicited.

The Motor de Luxe

Full of up-to-date features
Original, Simple and Reliable

MOTOR VEHICLE POWER CO.
1223 Spring Garden St. Philadelphia, Pa.

The Rutenber Manufacturing Co.

[INCORPORATED.]

...Manufacturers of the...

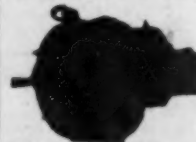
"RUTENBER" UPRIGHT GASOLINE MOTORS

for Automobiles, Launches and Stationary Use.
Both Air and Water Cooled. From 1 to 150 Horse
Power. Also AUTOMOBILES of every style, DELIV-
ERY WAGONS, OMNIBUSES and HEAVY TRUCKS
Room 207, 115 Dearborn St., CHICAGO

WE GUARANTEE GREATER MILEAGE

than other makes of motors.

...OUR...

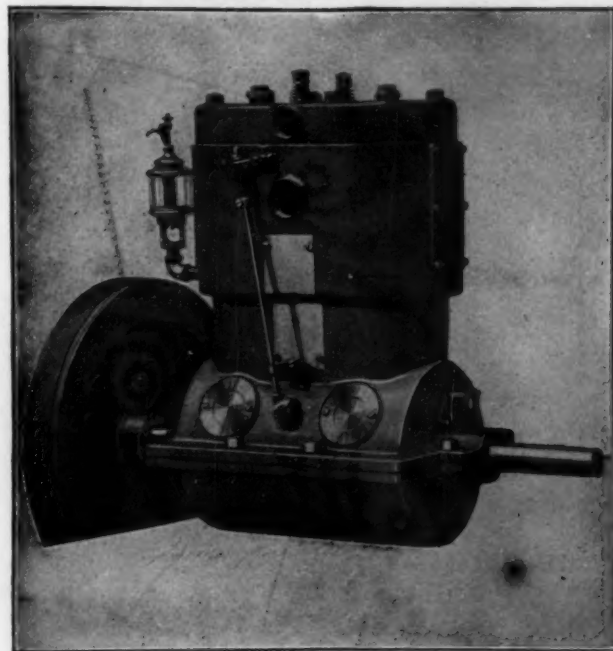


Recharging MOTOR

for electric vehicles accom-
plishes this. Send for pam-
phlet describing new system

Lincoln Electric Co., World Bldg., Cleveland, O.

An American Motor for Americans!



NOT a FOREIGN
REPRODUCTION



Howard Hydro
Carbon Motors

..FOR..

Automobiles
and Launches

GRANT-FERRIS CO., TROY, N. Y.

Ellwell-Parker Carriage Motors

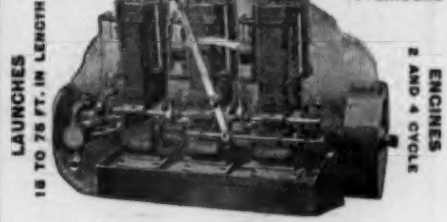
MOST PRACTICAL MOST EFFICIENT
LOWEST WEIGHT

WRITE US FOR PARTICULARS

The Ellwell-Parker Electric Co., Cleveland, O.

Wolverine Marine Engines

2 TO 25
BRAKE H.P. SINGLE, DOUBLE
AND TRIPLE
CYLINDERS



12 H.P. SELF-STARTING MARINE ENGINE

Wolverine Motor Works
GRAND RAPIDS, MICH.



New Model 6 Elmore

Vertical double cylinder motor, 3 speeds forward and reverse. Speed of carriage controlled by throttle. Latest design box front. Simple, practical and efficient. Agents wanted in unoccupied territory.

ELMORE MFG. CO.
CLYDE, OHIO

The "New Era" MOTOR CAR

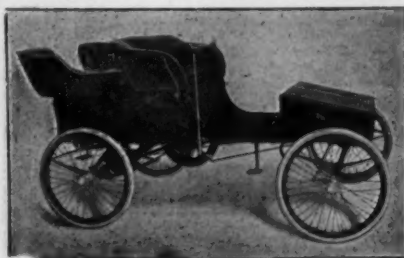
Simple, Reliable and Efficient. Will carry two or four people anywhere. Total weight, 950 lbs. Weight of motor, developing 7 actual horse power, 240 lbs. Easy to start. No cranking necessary. Practically noiseless. No vibration. Three gallons of gasoline sufficient for a ten hour run. Speed from 5 to 25 miles per hour. Price, \$850 f.o.b., Camden, New Jersey. Agents Wanted Everywhere. Write for Terms and Discounts.



THE AUTOMOBILE AND MARINE POWER CO., CAMDEN, NEW JERSEY

REASONS why the "BUFFALO MOTOR CAR" is so POPULAR "BUFFALO TONNEAU"

The Standard Motor Cycle



Model 15. Price \$900. Model 7. Price \$800.

Long Wheel Base—Easy Riding—6 Brake h.-p. motor—Surplus Power—Large Luggage Box, convenient for touring—Large Tanks Insuring Long Distance—An Excellent Hill Climber—Includes all features usually found on \$2,000 cars—Tonneau easily detached—We use celebrated E. R. THOMAS WORLD'S RECORD MOTORS, they excel.

Long Distance Phone Bryant 1370

BUFFALO AUTOMOBILE & AUTO-BI COMPANY, 1200 Niagara Street, BUFFALO



Model 4. Price \$175. Model 5. Price \$150

WANTED!

A Subscription Manager for Illinois. We want an energetic man, used to handling agents, to act as our representative. "The Automobile and Motor Review" Is Just What The Automobilist Wants, and the liberal commissions which we allow will bring in surprising results to a person of enterprise

Apply to Circulation Department
THE CLASS JOURNAL CO.
395 Broadway, New York City

"Only Needs an Introduction"

NOT ASSEMBLED, BUT BUILT



Every part of the construction—every Little Detail—is thoroughly tested by experts before leaving the factory.

**THIS METHOD INSURES
A Perfect Carriage**

GROUT BROTHERS, Orange, Mass.



A MOTOR-VEHICLE WORTHY of the STUDEBAKER NAME

WE have not been indifferent to the introduction of the horseless carriage. Rather than push upon the market an imperfect and immature product however, we have expended time and money in order to secure a type of automobile which would not discredit our standing in the vehicle world.

THE STUDEBAKER ELECTRIC VEHICLE

is admirably simple in construction, safe, easy to operate and remarkably free from vibration and noise. It is not a racing machine, but a strongly built practical motor-vehicle for everyday service on country roads and city streets.

Extensive experiments and tests have convinced us that the electric motor with the great improvements recently made in storage batteries, provides the most desirable equipment in every way. It is simplicity itself, clean, odorless, durable and sufficiently speedy for all practical purposes.

Now on exhibition at the following repositories. Descriptive booklet free.

STUDEBAKER BROS. MFG. CO.

NEW YORK CITY, Broadway and Prince Street
CHICAGO, ILL., 372-382 Wabash Avenue
KANSAS CITY, MO., 810-814 Walnut Street
SAN FRANCISCO, CAL., Corner Market & 10th Sts.
Local Agencies Everywhere

DENVER, COLO., Corner Fifteenth and Blake Sts.
SALT LAKE CITY, UTAH, 157-159 State Street
PORTLAND, ORE., 328-334 East Morrison Street
DALLAS, TEX., 194-196 Commerce Street
FACTORY & EXECUTIVE OFFICE So. Bend, Ind.



ARE YOU BUYING an automobile for speed or pleasure? If the former, get a noisy, greasy "road-engine." If the latter, the **Niagara Electric Carriage** will give you solid satisfaction, and it is not dirty. **NIAGARA MOTOR VEHICLE CO.**
121 Grant St., Buffalo, N. Y.

MARSH MOTOR CYCLE

Wins Blue Ribbon

in Boston-New York
Endurance Run,
July 4-5.
Distance, 254 Miles.

Write for catalogue

MOTOR CYCLE MFG. CO.

Brockton, Mass.



White
STEAM CARRIAGES

ARE THE SAFEST
CARRIAGES FOR
YOU TO OWN

Send for catalogue

White Sewing Machine Co., Cleveland, O.

AMERICAN
BUILT

GASMOBILES

IMMEDIATE
DELIVERIES

Look Up Our Record — First Prizes
and Blue Ribbons wherever shown

**Stanhope, Tonneau and
Wagonette Types**

Strong and Simple Construction.
Three and Four Cylinders. Best Type
of Ignition. Latest Style of Igniters.
Easy to Control. Always Reliable.
Best Hill Climbers Built. Prices to
suit the purchaser. We invite inspection.
Send for Descriptive Bulletins.

Automobile Company of America Factory and
Offices **Marion (Jersey City) N. J.**



INTUITION

is probably the greatest assistant
in locating automobile trouble,
but the best plan is to own a

MODEL F



Packard

and not have any trouble. The
experimenting is all done, and
what you buy is thoroughly prac-
tical. This is not all advertising
talk, for you can prove every
word if you will only

ASK THE MAN WHO OWNS ONE

Ohio Automobile Co., Warren, O.

Eastern Department, Adams-McMurtry Co., 317 W.
59th St., New York. Boston Agency, H. B. Shattuck
& Son, 22 Columbus Ave., Boston, Mass. Chicago
Agency, Pardee & Company, 1404 Michigan Boulevard



12-Passenger Brake

A Great Money = Maker

PERSONS INTERESTED IN AN
AUTOMOBILE for either pleasure or
profit should procure a copy of our
Catalogue "D," illustrating STAN-
HOPE, TRAPS, SURRIES,
BRAKES, COMMERCIAL DELIV-
ERY WAGONS, BUSES and
AUTO-COACHES. :: Address

Chicago Motor Vehicle Co.

370-372 Wabash Ave.

Factory, Harvey, Ill.

CHICAGO

WINTON

Gold Medal (first award) in the official
speed trials.

Silver Cup (first award) in the official
hill climbing trials.

Blue Ribbon (first award) in the official
100-mile non-stop endurance trials.



WINTON TOURING CAR

It contains the simplest, most practical
and best constructed motor manufac-
tured or sold in America :: :: ::

Our new catalog sent upon request

The Winton Motor Carriage Co.
CLEVELAND, U.S.A.

NEW YORK CHICAGO BOSTON PHILADELPHIA

NOTWITHSTANDING

The long distance, and above all, the great difficulties of bad mountain roads in Switzerland and Austria

THE LIGHT DARRACQ

Vehicles Have Figured Brilliantly in the

PARIS-VIENNA RACE

Taking FIRST PLACES and establishing records as they usually do:

- 2—**EDMOND** . 16 h., 12 m., 30 s.
 3—**BARAS** . 17 h., 17 m., 52 s.
 5—**HEMERY** . 17 h., 28 m., 28 s.
 6—**MARCELIN** 17 h., 45 m., 18 s.
 9—**COLLIN** . 19 h., 19 m., 35 s.

Also in the voiturette class

1st—GUILLAUME 18 h., 54 m., 50 s.

BUT

Most noteworthy is the fact that in the General Classification the Light

DARRACQ

Vehicles are 3d and 5th, beating

20 Heavy Racing Machines 20

Proving not only that the DARRACQS are the fastest, but are also superior to the

MASTODON RACERS

In Endurance, Reliability and Regularity.
IMMEDIATE DELIVERY

American Darracq Auto. Co.
652 Hudson St. - NEW YORK
 Near 14th St. El. R.R. at 9th Ave.

F. A. LAROCHE, Gen. Sales Mgr.

Columbia Electric AUTOMOBILES

Are best for a large class of pleasure drivers

For runabout service

For Physicians

For calling and social functions

For varied business uses



COLUMBIA RUNABOUT
MARK XXXI

Runabouts	Victorias	Surreys	Tonneaus	Cabriolets
Broughams	Hansoms	Buscs	Wagonettes	
Patrol Wagons	Chiefs' Wagons	Ambulances		
Delivery Wagons	Trucks	Vans		

WRITE FOR OUR LATEST CATALOGUE

ELECTRIC VEHICLE CO.
HARTFORD, CONN.

The ONLY Automobile that
has won EVERY Endurance
Contest held in America is the

Haynes-Apperson

The Most Practical Automobile in the World



WE WON
THE
100-MILE
NON-STOP
CONTEST
ON MAY
30, OF
COURSE

Runabout, 6 horse-power, 2 passengers.	\$1,200
Phaeton, 9 " " 2 "	1,500
Surrey, 9 " " 4 "	1,800

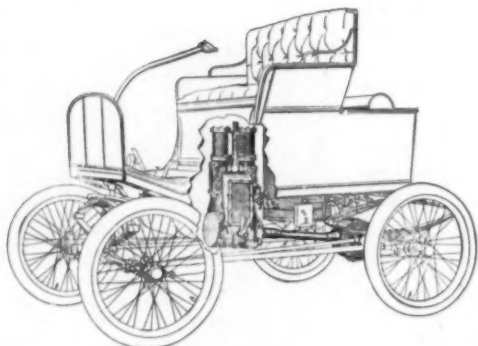
We offer you a proved reliability, ease of access to working parts and simplicity of operation that no other make in the world affords, at reasonable prices for good workmanship. Look up our records, ask our customers, get our free booklets. " " " " " "

HAYNES-APPERSON CO., Kokomo, Indiana

THE Century Roadster \$650

Ready to Ship

F. O. B. Syracuse, N. Y.



Has the features that have proved the Century Steamers the best in the world. Notice the direct shaft drive. Engine and gear dust proof and run in oil. No torch, no trouble. Write for particulars.

CENTURY MOTOR VEHICLE CO., Syracuse, N.Y.

To Users of Automobiles

DO you thoroughly understand the construction of your machine? Are there not some points which you would like to understand better? Would you not like to keep apace with the times—to know what is going on in automobile circles—to follow closely the developments in construction and to keep in touch with others who are interested in automobiles?

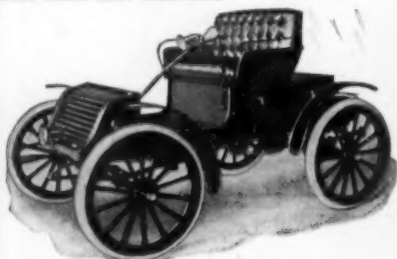
The best paper in the field, THE AUTOMOBILE & MOTOR REVIEW, costs you only \$2.00 per year. Order now while you think of it.

THE CLASS JOURNAL CO.

395 Broadway, New York

TRY IT AND YOU WILL BUY IT

THE FRIEDMAN ROAD WAGON, point for point, is the equal of any gasoline Automobile sold in the U.S. for \$1,200, and is the only machine equipped with a Double Cylinder Four Cycle Balanced Engine that retails for less than that amount.



They will climb any grade up to 30%, and develop any speed up to 30 miles per hour. Absolute and instantaneous control. Every engine guaranteed to develop six horse-power.

Our price this year \$750.00.

Hung on platform springs front and rear.

Friedman Automobile Company

3 East Van Buren Street
Chicago, Ill.

The Medal Winner at the Pan-American

Best
DesignBest
MadeBest
FinishBest
ServiceLightest
WeightStrongest
MadeMost
DurableBest
Control

The Lightest Draw Bar Pull of any Vehicle Made
The Most Efficient of all Electric Vehicles

Baker Motor Vehicle Co.

CLEVELAND, O.

Send for Catalog

Dealers Wanted



Toledo Steam... ... Carriages

"The Reliable Kind"

A Customer Says:

"GENTLEMEN:—The writer has used one of your **Toledo Steam Carriages** for the last six months with unvarying success, and with absolutely no expense for repairs, having driven the machine over all kinds of roads in the very worst weather, and asked things of it which were unreasonable, yet it has never been found wanting. It belongs in a class all by itself."

INTERNATIONAL MOTOR CAR CO., Toledo, Ohio

BRANCH SALESROOMS

New York, 91 Fifth Ave. Brooklyn, 342 Flatbush Ave.	Boston, 223 Columbus Ave. Providence, 15 Snow St.	Hartford, Hartford, Conn. Washington, 817 14th St., N.W.
--	--	---




ALL ROADS ALIKE TO *The* **OLDSMOBILE** THE BEST THING ON WHEELS

THE ideal Automobile for business and for pleasure, combining strength and practical merit with mobility in control, economy in operation and lasting wearing quality. Starts and stops at will and travels all roads with equal safety—in a class by itself—an everlasting runner. Call on any of the following sales agents or write direct for handsome illustrated descriptive book. Price \$650.00, F. O. B. Detroit.

SELLING AGENTS

Oldsmobile Co., 138 W. 38th St., N.Y. City Oldsmobile Co., 1124 Connecticut Ave., Washington D.C. Quaker City Automobile Co., 138 N. Broad St., Phila., Pa. H. B. Shattuck & Son, 239 Columbus Ave., Boston, Mass. Banker Bros. Co., East End, Pittsburgh, Pa. Oldsmobile Co., 411 Euclid Ave., Cleveland, O. W. E. Metzger, 254 Jefferson Ave., Detroit, Mich. Ralph Temple & Austrain Co., 293 Wabash Ave., Chicago, Ill. Fisher Automobile Co., Indianapolis, Ind. Olds Gasoline Engine Works, Omaha, Neb. W. C. Jaynes Automobile Co., 873 Main St., Buffalo, N. Y. F. L. C. Martin Co., Plainfield, N. J. Autovehicle Co., 79 Orange St., Newark, N. J. Day Automobile Co., St. Louis and Kansas City, Mo. George Hannan, 1455 California St., Denver, Colo.	F. W. Stockbridge, Paterson, N. J. Clark & Hawkins, 903 Texas Ave., Houston, Tex. Hyslop Bros., Toronto, Canada Manufacturers Co., 27 Fremont St., San Francisco, Cal. A. F. Chase & Co., 215 Third St., Minneapolis, Minn. Oldsmobile Co., 728 National Ave., Milwaukee, Wis. Rochester Automobile Co., 170 South Ave., Rochester, N. Y. Jas. B. Seager, Tuscan, Ariz. F. E. Gilbert, Jacksonville, Fla. Texas Imp. & Mach. Co., Dallas, Tex. Abbott Cycle Co., 411 Baronne St., New Orleans, La. C. H. Johnson, 55 S. Forsyth St., Atlanta Sutcliffe & Co., 411 Main St., Louisville, Ky. Brown-Thompson & Co., Hartford, Conn. Masons Carriage Wks., Davenport, Ia. Adams & Hart, Grand Rapids, Mich. Kline Cycle & Auto. Co., Harrisburg, Pa.
---	---

OLDS MOTOR WORKS, Detroit, Mich., U.S.A.

Automobile Parts

BOILERS—14 in. high, 295 copper 1-2 in. tubes; made of 5-32 in. steel; long joint is quadruple rivited double butt strap joint; weight, 104 pounds. . Price, \$50
Test certificate and insurance for one year Extra, \$10

RUBBER TIRES—2 1-2 x 34 in., \$10
“ “ 2 1-2 x 38 in., \$10

AIR PUMP to connect with engine for air pressure, \$7

MUFFLERS, DIAPHRAGMS, REGULATORS, HAND PUMPS, GASOLINE TANKS (8 gallons) and many other articles for those who wish to build an automobile

Stanley Manufacturing Co.
89 BEACH STREET - - BOSTON, MASS.